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ORIGINAL COMMUNICATIONS.

Dislocation of both knees at one time. Extirpation of a very large Tumor, including the Superior Maxillary bone. Caries of Carpus; Amputation. Immense Anal Prolapsus—New Operation—Cure. Cases selected from the Surgical Clinics of Starling Medical College. By J. W. HAMILTON, Prof. of Surgery.

DISLOCATION OF BOTH KNEES AT ONE TIME.—This case was presented at the hospital of the Ohio Penitentiary, on the 2d day of November.

The patient, Simon Boehm, is a German, aged 44, of medium muscular development, and good constitution. While engaged in some labor about a very large pile of saw-dust, a large quantity of it suddenly fell, burying him beneath. On being extricated it was discovered that his knees had sustained some injury, in consequence of which he was carried to the hospital, with the ordinary symptoms of intense shock of injury. His knees were both found quite completely dislocated; both legs being thrown transversely to the right, while the fibula of the right side was fractured, just below its head. Very slight manipulation, only, was necessary to effect reduction. Equally slight handling, only, was required to bend the legs towards the left, making with them, and the thighs, almost any desired angle. In fact the ligamentous structures about the joint were so completely broken up, and the muscular system so perfectly

relaxed, that it is supposed that the articular surfaces might have been put in almost any imaginable relation to each other. The skin was not injured.

The patient was put on his back, anodynes, stimulants, &c., administered, and an attempt made to retain the reduction of the dislocations, by position, pads, &c. At the end of twenty-four hours this course was abandoned, because of its not succeeding; changes in posture, and various motions being attended with gliding of the surfaces, and lateral bending of the limbs. Comforters were now folded, so as to be of three thicknesses. Then, rolling from each end till the cylinders thus formed approximated the middle of the folded comforter, a leg, from the middle of the thigh, was dropped between the cylinders thus formed; a good piece of oil-cloth of adequate size being interposed. The leg was thus provided with a soft bed consisting of three thicknesses of a thick comforter, and extensive, soft, lateral support was given its sides, by the junk-like cylinders. The oil-cloth afforded the means of making continuous applications of cold water. Each leg being thus adjusted, the two were thus thrown widely apart, and the patient was not able to turn upon his side, a position which was invariably attended with displacement.

The additional treatment resorted to consisted mainly of the use of opium, and the continuous application of cold water. This was continued, in connection with the above arrangement, for ten days. Greater inflammation than was present at any one time, is often produced by very trifling causes. At the end of this time, active inflammatory symptoms had subsided, and a considerable degree of solid edema was present. The apparatus was discontinued; slight passive motion and the external use of iodine were directed.

On the 45th day, the legs being carefully bandaged, and the knees supported with pasteboard splints, the patient was able to go about the hospital with the assistance of crutches. There was at this time no anchylosis: on the contrary the knee-joints presented almost perfect freedom of motion. In the right leg, however, by the exercise of but very moderate lateral force, a partial dislocation could still be produced, at pleasure. A complete recovery is confidently anticipated.

Extirpation of a large Tumor, including the Superior Maxillary Bone.—This case was presented at the College Clinic for Saturday, November 12.

The patient was J. W. M——, a lad aged 16 years, from Muskingum county. More than three years previously he was attacked with severe pains, supposed to be toothache, in the right superior maxillary bone. The suffering, sleeplessness, &c., were such, for six months, that he was pretty much confined to the house. In the mean time, the region of the jaw had undergone apparent tumefaction. For a year and a half this grew rapidly, attaining very considerable size. At this stage he visited the Commercial Hospital in Cincinnati, where ligation of the carotid of the right side was performed, for the purpose, it is supposed, of retarding the growth. It probably had that effect, to some extent. Subsequently the boy visited the leading cities of this country, and Liverpool in England, for the purpose of obtaining professional advice and assistance. But for some reason the case does not seem to have enlisted very earnest attention, or was, perhaps, not deemed suitable for an operation. In the mean time, although the general health was good, the disease was steadily progressing, and it was evident a fatal event was not far in the future. The tumor was now of immense size, pressing forward the eye, and giving it a most unpleasant prominence. The zygoma and malar bone of the affected side were thrown out, so as to give a most unseemly prominence in that situation. All the teeth of the affected side, except the first bicuspid, the canine, and two incisors, had long previously been forced out, and these were huddled together on the left side of the median line. The hard and soft palate were forced down upon the floor of the mouth: the nares of both sides were plugged tightly, the septum being forced towards the left: the tumor protruded between the teeth so as to separate the jaws to the extent of fifteen lines. *The upper jaw of the right side was thrown sixteen lines in advance of the lower*, while that of the left side was advanced twelve lines, and thrown into a direction not greatly removed from a straight line. The raphe of the hard and soft palate was removed but a very few lines from the alveolus of the left side, between which parts there was a groove, admitting of the passage of food, &c.

Laterally, the tumor was exceedingly prominent, and descended to a point six lines below the level of the inferior maxillary bone. Posteriorly, just beneath, and in close connection with the posterior extremity of the zygoma, a mass presented itself, larger than a hen's egg, the connections of which, whether superficially with the posterior part of the lateral mass, originally; or whether there was a

deep connection with the original disease, such as resulted in its development in and through the pterego-maxillary fissure, could not be made out. The latter was apprehended, and was the only satisfactory explanation of the anterior projection of the jaw.

The part protruding from the mouth was in a state of ulceration. Frequent hemorrhage occurred from this surface, and from all the mucous surfaces involved. During sleep breathing was slow and noisy, to a most frightful degree.

Repeated examinations, and the most rigid scrutiny of all the circumstances of the case, resulted in a conviction that an operation was practicable, and demanded. The views entertained of the case were as follows :

The disease evidently, or at least probably, originated in the antrum. Having progressed, to some extent, the walls of that cavity had become greatly attenuated, or had even disappeared, from absorption. That now being relieved from its osseous connections, the general enlargement of the mass, or rather, perhaps, the enlargement of that part occupying the situation of the pterego-maxillary fissure, had gradually, and with comparative facility, forced the entire jaw forwards. This view of the case was regarded as being much more consistent with all its circumstances, than the supposition of an original tumor in the pterego-maxillary space, although the leading diagnostic symptom of that difficulty—the anterior projection of the upper jaw—was present, in a marked degree.

All the hazards and uncertainties being distinctly stated to the parents in writing, a written request was made that they should be assumed; which was accordingly done, the venerable Dr. Geo. Sacsche, and Drs. Drury, Seltzer, Gill and Washenswanz, assisting.

The usual incisions, from the inner canthus to the middle of the upper lip, and from the zygoma to the outer angle of the mouth, were made, in the ordinary manner. In making the latter, a very great curvature downwards was given the incision, so as to make it practicable to get below the tumor. In dissecting up the flap it was found necessary to make it very thin, as the tumor had involved, or caused the absorption of the subjacent tissues. Dissecting the cellular tissue, and infra orbital nerve from the floor of the orbit, the eye was protected by a spatula. The usual division of bone was now effected with great facility, mainly by the use of the bone forceps. The lateral aspect of the tumor being next well cleared of soft parts, an attempt was made to bring the whole away by press-

ing it down in the ordinary manner. But this could not be accomplished. The steps of the operation were now carefully reviewed, with a view to ascertain whether, in the previous steps, there had been any inefficiency, especially in reference to the division of bone. None could be discovered: the result was a conviction that the difficulty originated in the intimate attachments of the parts beneath the zygoma, and which could not be reached at this stage of the operation. The only alternative was to attempt the removal by piece meal. With some difficulty a mass of the size of a fist was removed: then a smaller one; and now the lobe wedged in the situation of the pterego-maxillary fissure was reached and torn away with the fingers, the knife merely assisting. In now attempting to complete the removal of the floor of the orbit, it gave way, leaving the posterior part of it in situ. The disease was strongly attached to its under surface, and to the base of the skull for some distance beyond. This was cut as closely as possible with the knife, and then subjected to the vigorous use of the actual cautery. Only a slight fringe of the posterior margin of the soft palate was saved. The operation was necessarily tedious and bloody in the extreme. The attenuated flap seemed to have lost all signs of vitality: the dressing was as usual. Chloroform was given in the outset, but was very soon abandoned, on account of the hemorrhage.

The shock to the system was very great, but fair reaction was present at the end of 20 hours. For several days sloughing of the flap was apprehended. The stitches were removed on the third and fifth days, adhesion, meanwhile, having occurred. Some difficulty was experienced in keeping the flaps stuffed out, on account of the great size of the chasm.

On the 10th day, I found the patient traversing our large college building. On the 12th day, he traversed the city on foot. On the 14th day, he made a visit to his friends, fifty miles distant, walking two or three miles at the extremities of the route.

His appearance is, of course, vastly improved, although it is still peculiar. The malar bone and zygoma are unseemly, though their undue prominence is in a great measure lost, from a fracture of them which occurred in the operation. The middle incisor tooth of the left side stands with its edge exactly forward, and is 12 lines in advance of its fellow, making an unpleasant prominence in that situation.

Previous to the operation there was, except in a single direction,

total blindness. Vision, and the natural degree of prominence of the eye, are perfectly restored.

The tumor is evidently a simple fibrous mass; yet from its having so perfectly passed the boundaries of the antrum, there must, of course, be some degree of apprehension, that enough escaped the knife to effect a reproduction. Yet the most rigid scrutiny, after the completion of the operation, as described, did not indicate a single suspicious point. The tumor is of such size as to nearly fill a quart jar.

Articular Caries.—Tracy Wilcox, a farmer aged 28, of Franklin county, presented himself at the College Clinic for Saturday, December 3. Till recently patient enjoyed good health, and is of healthy parentage. Nineteen months previously a difficulty appeared at the left wrist, which for more than a year was supposed to be rheumatic. Two and a half months since, the pain, for the first, became serious. Six weeks ago, for the first, purulent discharge occurred.

At the time of his appearance at the Clinic his general health was seriously impaired; pulse, matutinally, 120; vesperally, 136; breathing more than 30 per minute; appetite impaired; rest imperfect. The horizontal position, whether diurnally or nocturnally assumed, was productive of cough, which, even the horizontal position being maintained, subsided within a reasonable length of time, and was attended merely with the expectoration of moderate quantities of mucus. A careful physical exploration of the chest failed to elicit any organic difficulty, in either heart or lungs.

The striking features of the case relate to the local difficulty. On the palmer aspect of the lower extremity of the radius was a discolored surface of the size of a three cent piece, which was perforated by two or three small sinuses, from which small quantities of grumous pus could be pressed. Otherwise there was no discoloration, and but very slight tumefaction. On grasping the parts, however, at any point about the carpus, or the proximal portion of the metacarpus, the bones moved freely upon each other, with a grating sensation not to be distinguished from the ordinary crepitation of fractured surfaces. One or two of the carpal bones were apparently floating quite loosely in the disorganized mass, so much so that, apparently, by an incision through the integument, they might have been extruded, with great facility. The extent of the

disease could be estimated quite definitely. It evidently implicated the articular surface of the radius and ulna, both ranges of the carpal, and the proximal articular surfaces of all the metacarpal bones.

Accordingly, as the only means of saving the life, and restoring the general health of the patient, an amputation was performed, at about the junction of the middle and lower third of the fore arm. Within 2 hours after the operation the pulse fell to 90 per minute, and for 30 hours it continued at from that number to 96, with the respiration at from 26 to 29, and the patient in every way quite as comfortable as before the operation. From this time the pulse became more frequent, ranging at about 112, for the next 15 days. During this time, the patient used liberally Acidum Sulphuricum, Quinia Sulphus, and, at a later stage, Ferri Carbonas: meanwhile, a liberal diet, and the regular and free use of a good article of common ale, were enjoined. At the end of 16 days the wound had united, but only one ligature had separated, two remaining. At that time, his apartment being very small, it was thought best to consent to his leaving, for his home in the country.

The only remarkable features connected with this case, are expressed in a single word, its insidiousness. Only six weeks before the amputation, suppuration occurred, for the first; and even then, was at no time more than slight in degree; yet the disorganization was most extensive. All the bones, as shown by the specimen, are deprived of almost every vestige of articular cartilage.

Immense Anal Prolapsus. New operation. Cure.—This case was presented at the Penitentiary Clinic, December 7. An Irish lad, named Quin, aged 20, pale and feeble, with great muscular relaxation, had been tormented with prolapsus for a long time. For two years past, the protrusion was excited by the most trifling causes, such as the erect posture; a slight cough, when in the recumbent posture; or changing position in bed. When thus protruded there was an almost constant passive oozing of blood, mucus, &c., from it. When protruded with any thing like violence, as in defecation, lifting, or severe coughing, sharp jets of blood escaped, thus greatly reducing his strength.

The protruded mass was of an exceedingly florid color, and of the shape of a truncated cone. The ordinary length of the cone was full four inches, the base, resting upon the integument, was ten and

a half inches in circumference. The truncated extremity was about an inch in diameter.

All the ordinary means had been tried and repeated, without success. In addition, a deep sulcus was made around the mass, by the use of potassa fusa, hoping that the contraction, connected with its cicatrization, might be salutary. It did no good, however.

After careful and repeated consideration of all the circumstances of the case, it was determined to yield to the entreaties of the patient, and incur the hazards of the following operation:

The bowels having been thoroughly evacuated, and an injection of warm water containing a drachm of Laudanum administered, he was directed to effect a medium protrusion. Placing him upon his knees, and throwing his trunk well across a chair, an assistant forced the nates well aside, so as to expose the tumor's base. With a long, large needle, made for the purpose, and loaded with a strong, and rather large whip cord, the two ends of which were kept even, one being colored with ink, the base was now transfixed perpendicularly, so as to carry the needle, and of course the two cords, through a ring, attached to a handle by a shaft, and carried up into the cavity of the tumor. The ring was now pulled out, bringing with it, of course, the white and black cord. These were now cut in two; giving four ends hanging from the interior, and an equal number from the exterior. In the same manner, a transfixion was now made, in a horizontal direction, doubling the number of ligatures hanging from the interior, and exterior, respectively. By a little reflection, it will be seen, that by tieing two vicinal strings of the same color, which hang from the inside, then drawing on the extremities of the same which hang from the outside, the entire ring of protruded tissue, constituting the base, may be ligated and strangulated in four parts, which will be equal, if the transfixions are accurate. Furthermore, it will be observed that the traction necessary to the induction of strangulation, acts equally *toward* and *from* the centre of the anus, and that accordingly it is not occluded, by the operation. After its completion, the index finger could, readily, be passed within the ligatures.

Two grains of opium were now administered, and the patient was placed in bed. Decided prostration, with great restlessness and tenesmus, continued for seven hours. It was the intention to allow the tumor to remain extruded. Frequently, within these hours, however, the patient pushed it up into the rectum, but was obliged

to force it down as often. From the liberal exhibition of opium he passed a comparatively comfortable night. Twenty-one hours after the operation the tongue was dry, rough, and brown; patient occasionally vomited; pulse 95; protruded mass black, insensible, apparently sphacelated. Having entertained the propriety of cutting off the mass, as soon as adequate security was afforded against the occurrence of hemmorrhage, to test the state of the part, light incisions were now made at various points on the surface. These were followed, within an hour or two, by serious hemmorrhage, bringing the actual cautery into requisition.

Twenty-eight hours after the operation, the pulse had reached 128 per minute: at the end of 45 hours it numbered 114; and vomiting, which had been a prominent and distressing symptom, had subsided.

At the end of four days the pulse was 96 per minute; patient was resting fairly; had but little pain, and was relishing very fair supplies of food. At this time the protruded mass was distinctly shaken, synchronously with the pulse. The skin about the anus, perineum, and nates, seemed perfectly healthy.

From this time, to the end of the eighth day, there was no change worthy of note. Spacelation of the summit, with separation of the slough, leaving about one-half of the length of the tumor, had now occurred, leaving a surface, which exhibited a degree of sensibility and vascularity, not admitting of the reasonable expectation of further sloughing from the first ligation. The ligatures were accordingly withdrawn. Ulceration had occurred about them to such an extent that the orifices from which they were withdrawn, would readily admit of the introduction of a finger. The intervening masses of tissue, embraced within the ligatures, were reduced to the size of a finger, and were very dense. A curved prope, armed with a ligature, was now passed readily around these masses, and they were subjected to a second ligation.

From the 9th to the 11th day, inclusively, the patient was much more comfortable than at any previous time. Previous to this time the catheter was in daily requisition, but urination was now readily effected. The pulse ranged at about 80: patient rested well, with almost perfect exemption from pain; on each of the two latter days, there were fecal evacuations. *Discharges of flatus were present from the first, and throughout.*

On the 13th day, three of the ligatures, last applied, had separated. Daily fecal evacuations had occurred for several days: the remain-

ing ligature, and the remnant of the protruded mass were about ready to come away, and the general condition of the patient was, in every way, such as not to admit of a remaining doubt as to the complete success of the operation.

Remarks.—I am not aware that this operation, or anything resembling it, has ever been performed. In speaking of the case of a soldier, who had a similar prolapsus, Brodie makes a similar remark, as to *his* personal knowledge. Erichsen gives directions for the performance of ligation in prolapsus, which evidently, however, are only applicable to slight, or moderate cases. It is desired to fix particular attention upon the fact, that while the above mode of ligation is well calculated to effect strangulation, *it did not cause occlusion of the anus, flatus escaping throughout, and fecal evacuations occurring quite regularly after the ninth day*, and were intentionally prevented, previous to that time, by the liberal exhibition of opium.

Mary Ann Decrow, et. al, vs. *H. H. Little. A Prosecution for alleged Mal-Practice.* Tried at the October Term, 1859, of the Morgan Common Pleas; HANNA, LINN & TOMPKINS, Attorneys for Plaintiffs; GODDARD, WOOD & EVANS, Attorneys for Defendant. Reported by WM. A. BROWN, Student of Medicine.

There was reported in the Journal for September, a case, *McQueeney* vs. *Jones*, of prosecution for alleged mal-practice in the treatment of an injury of the ankle joint, with fracture of the fibula, the plaintiff claiming $10,000 damages. An almost precisely similar case has occurred in our common pleas, a report of which I am about to make.

This suit was instituted for the recovery of damages to the amount of ten thousand dollars, for alleged mal-practice. The plaintiffs aver and complain of carelessness, unskillfulness and negligence in the treatment of a fracture of the fibula and dislocation of the tibia inwards, with fracture of the tip of the internal malleolus. In the petition, the plaintiffs claim that the "defendant, regardless of his duty in the premises, so carelessly, unskillfully and negligently set and reduced the fracture and disjointed ankle, bound up and bandaged the same, &c., and wholly in consequence of such unskillfulness, the limb is crooked and *shorter* than in its natural

state, that the ankle is stiff and she unable to use or move the same, &c., and therefore pray damages."

The defendant claimed that all the material allegations of the plaintiff's petition, upon which they predicate their demand for damages, were untrue. That he did not undertake absolutely to cure and heal the same. That it was untrue he conducted himself carelessly, &c., or that in consequence of any want of care or skill on his part, the leg was crooked or shorter, or the ankle stiffened, as in the petition alleged.

THE CASE.—The witnesses summoned by plaintiffs, stated in substance, "that Mary Ann Decrow, on the 25th of February, 1856, fell and fractured the small bone of her left leg, and dislocated her ankle. That Dr. Little was sent for, who reduced the luxation and dressed the parts with splints and bandages. That he next day removed the dressings, stating that he feared the consequence of any further continuance of the same—inflammation, &c. That he did not re-apply the splints until after ten days; that in the meantime the pain and swelling increased. That when he first dresssed the parts he ordered cold water to be applied constantly. That he did not again apply the splints for over twenty-four hours at any time thereafter. That the patient was confined about three months, in consequence of her injury. That the ankle is yet swollen and painful, and that the *leg is shorter* than the other." The plaintiffs called no medical witnesses.

Gen. Goddard, attorney for defendant, claimed a non-suit, and moved the court to dismiss the case, on the ground that plaintiffs had failed to make out a case in law. Court overruled the motion.

Several witnesses called by defendant, stated that plaintiff had danced since the accident to her limb. That her lameness was only observable when attention was called to the fact. Dr. LITTLE said he was called to treat a fracture as stated. He reduced the luxation, adjusted the bones, applied splints and rollers, and ordered cold applications. Next morning he was called and told that pain had been severe. On examination, he found the parts much swollen and painful, and discovered that vesicles were making their appearance over the point of fracture, and about the ankle. The limb was cold, pulseless, with great extravisation of blood, and blotches of discoloration on the surface. He threw off his dressings and applied warm fomentations and stimulants, to arouse circulation and restore vitality to the parts, and dressed by *position;* he continued this prac-

tice. Thereafter, the patient being much annoyed by spasmodic twitching of the muscles, he applied the splints to restrain the jerking and ascertain if the limb would bear any pressure. Twelve hours after, examined the limb; vesication increased and tendency to gangrene more apparent; limb very much discolored and cuticle in places sloughed away and serum oozing and dripping from it. Again threw aside appliances and dressed by position, employing antiseptic and emolient applications.

He said, in answer to the questions of the attorneys, that the result of the continuance of bandages and splints would have been gangrene, and loss of limb. That fractures of the kind, from their nature, are very dangerous, and that we can never expect a perfect cure. He referred them to the statistics of Dr. Hamilton, of Buffalo,* where it was given in one table, 9 imperfect and 2 perfect, out of 11 cases. He said it was a physical impossibility for the limb to be shorter than the other, unless the tibia had been broken, which was not the fact in this case. (The foot being depressed and the joint partly anchylosed, gave the plaintiff the impression of its being shorter—she not being able to bring the heel to the floor when she stands erect.)

Prof. HAMILTON, being called, said he was professor of surgery in Starling Medical College. He said that the practice of Dr. Little in the case met with his entire approbation; his course being one that would have been pursued by every intelligent, well-read physician or surgeon. (The Professor here explained to the jury the nature and danger of such dislocations and fractures, in a simple and highly satisfactory manner.) He said he had examined, with other physicians, the limb of Mrs. Dean, and found the limb that had been fractured about seven-twelfths of an inch larger around than its fellow of the opposite side. He said the bones were in their place, save a *very* slight depression of the fibula at the point of fracture, which is beyond the control of surgeons by its position, and in all cases of this kind is found more or less depressed. It cannot be manipulated without an unnecessary operation, to which few persons

*See *Transactions of American Medical Association*, 1855, 6 & 7. That admirable and valuable Report of Frank Hastings Hamilton, M. D., *On Deformities after Fractures*. Dr. Hamilton has now a work in press, which will embrace these papers, by permission of the Association; the book will be published in a very short time by Blanchard & Lea, and should be secured by every member of the profession who desires information on a subject never before thoroughly investigated.

would be willing to subject themselves. He said he found the joint somewhat stiffened, but which depends upon circumstances beyond our control. The leg was in nowise shorter than its fellow; he made six or seven measurements of the fibula and tibia of each limb, and discovered no variation of length. He said that *imperfect* is the rule, *perfect* the exception. (*Ham. Rep. Trans. Am. Med. Ass.*) The Professor then, on the question being asked, said that Dr. Hamilton of Buffalo was the best authority in the West, and probably in the nation, on the subject of deformities after fractures; said that Ferguson was recognized as a standard work on surgery.

Dr Brown, being called, said that the practice of Dr. Little was commendable. That he had examined the limb and met with the same results as Professor Hamilton, as to size, anchylosis of the joint, &c. In short, that he concurred fully in the views expressed by Dr. Hamilton.

Eighteen physicians being then called, successively concurred in the views of the preceding medical men. The case was submitted without argument. The Court charged the jury: 1st. That the medical man engages that he possesses a reasonable degree of skill, such as is ordinarily possessed by physicians. 2d. He engages to exercise that skill with reasonable care and diligence. 3d. A medical practitioner is not responsible for the result, or does not insure the result. The jury, being out a few minutes, returned with a verdict for defendant.

This was a case in surgery where the indications for treatment were plain, and such as would mislead no man posted in his profession. The continuance of the fracture dressings would certainly have been attended with gangrene, and dressing by position was the only treatment to be adopted by an intelligent man. The adjustment is a good one, and one with which any surgeon may be well satisfied; *there is no deformity* other than the slight swelling still remaining, and were it not for the partial anchylosis, the leg would be fully as good as its mate. But how are we to control this anchylosis dependant on a high degree of inflammation of the synovial surfaces of the tibio-tarsal articulation, when the constant movement we would naturally recommend, fails to arrest its progress? Yet I have heard of instances—and, in truth, they are frequent in medico-legal annals—where anchylosis remained after injuries to the joints, of members of the medical profession *advising prosecution* of the surgeon, communicating to the patient, in ostenta-

tious ignorance, the astounding information that his stiffened joint is the result of bad management and unpardonable neglect? Happily, and to the honor of an intelligent judiciary, be it said, prosecutions for mal-practice in our State are not as they were once, and physicians are protected in the exercise of a sound judgment and the application of a noble science. It is very seldom we hear of an instance of the plaintiff in these suits recovering his damages; and in the majority of cases the trial is a most amusing farce to intelligent men. But whence comes these prosecutions? No patient will prosecute his surgeon without medical advice; and it is to be feared they are often caused by envy, rivalry and jealousy among medical men—an opportunity being offered to sneer at a rival, and assert or *hint* a superior wisdom.

McConnelsville, O., Oct. 23.

Obstetric Novelties. Delivery of a full grown, living, healthy, child, and a three or four months fœtus in peculiar circumstances. Rupture of the uterus not entering os uteri—delivery through rupture into vagina: By Jos. S. Burr, M. D., of Port Washington, Ohio.

Notwithstanding I have been in the constant practice of medicine for the last 38 years, and have aimed to keep posted in the progress of the profession, yet every now and then some *new* or more than usually interesting cases occur to me; two of which, (of recent date) I will here present, and which, if you think they will interest your readers, you may give place to in your Medical and Surgical Journal.

On the 1st of this month I was called to a lady in labour with her second child. At first nothing special was observed, except the great size and uncommon hardness of the abdomen. The pains were few and far between, and seemed rather inefficient; but upon examination I found the os-tinca dilated to size of silver dollar or more, and continued to dilate gradually for some twelve or fourteen hours, weak as the contractions were. The pains then gradually abated in frequency and in force more than previously, until I prescribed ten grain doses of equal parts of cimicifugin and caulop-

hyllin* twenty minutes apart, until three doses were taken, which aroused the organ to sufficient expulsive force, and when the os-tinca dilated to nearly full size, and finding no *bag* of water, but a tense *globe* thereof, and nothing else that could be reached, I ruptured the membranes and let off say a pint of fluid, much to her comfort. Although the head had not yet engaged in the pelvis, yet the next pain *flooded the child to the world.* I presume that I have delivered 2000 women, but never before have I witnessed anything like such a quantity of liquor amnii. Fearing syncope, I ordered another powder given in brandy, and kept up unceasing and heavy manipulations over the uterus, and found it more inclined to contract than could have been expected from her exhausted condition. No hemorrhage occurred. When the system reacted sufficiently, the usual efforts were made to deliver the placenta, but without success. The hand was then introduced, and by long continued efforts detached it from the fundus. Though no new job to me, yet this was the most critical one of the kind I ever met with—the adhesions were so strong.

When cleared, my uniform habit is to introduce the fingers, to know that all is left right; in doing which, on this occasion, I came in contact with an uncertain something in the vagina. Tracing it upwards, in the right posterior part of the uterus, a *hard* shell-like something was found, and it being questionable, whether it was in the *wall* of the uterus, or *attached* to the inside surface thereof, an effort was made to ascertain if it could be separated therefrom; but it could not without inflicting more distress than prudence justified. I left it for the time being, came down to the loose parts below, and finding that a portion thereof could be brought without the vulva, did so, and called for a light, and found it to be the foot of another fœtus of some four or five months development. Then tracing up its spine, I found my finger on that hard, shell-like substance, and *within* a tough membranous sack, which with much difficulty was torn so as to get that hard thing out, and deliver it, which I found to be the *head* of the fœtus; but so compressed and flattened, that the parietal bones must have been nearly or quite in contact with each other. That tough envelop around the head I could not disengage from the womb, but it came away on the fourth day sponta-

*I like this combination far better than the ergot, which, when it acts at all, is too powerful, producing strong *spasmodic* and continued action, generally injurious to the child, and frequently so to the mother. This acts more physiologically, and does not so destroy the susceptibility of the uterus, should it be requisite to repeat it in a short time.

neously, and the woman did well in all respects. No envelopment of the body or any thing like plecenta was discovered, but I presume something of the kind existed, for there was a piece of umbilical cord attached to the fœtus.

The first child delivered was of full medium size, and healthy. The little one I will send you in a day or two, with the request that it be placed in the College Cabinet. To many it will be a curiosity, in more respects than one. If a head is essential to animal life, how could this fœtus be developed even to the extent you find it, with the head so compressed and flattened? From what cause was it thus flattened? Suppose that you open one side of the head and see if it contains any brain. Since it was delivered the head has spread out considerably laterally. When was it probably conceived? If both were conceived at the same time, how are we to account for the disparity of development? If a subsequent conception, how shall we reconcile it with the popular teachings of physiologists?

I have long been seeking more light, and would be pleased to see the views of others relative to this case, and especially as to the little fœtus.

Ruptured Uterus.—On the 16th of October, the wife of Wm. Pace was taken in labour for the fourth time, at each of which some complication existed, of which I have personal knowledge, from having twice delivered her myself.

She was a German woman of medium stature, of good general health, quite corpulent, with the longest and most *flabby* and pendulous abdomen, (whether pregnant or not,) I ever saw, and when at full period was enormous in size, the abdomen reaching nearly to her knees when sitting.

The following history was given me:

At the time expected, she was taken in labour quite actively, and sent for a neighboring midwife, who informed me that on arriving, "I found Mrs Pace in bed, with heavy pains in quick succession, and on examination found the head low down, requiring but half the length of finger to reach it. I ordered her to get up until the bed was fixed, which she did, and had several pains whilst on her feet, with a woman under each arm. When she came to get into bed, a very strong pain took her, and she kneeled down, with arms on bed, (which was unusually high,) and screamed out, *the waters have broken.* I got her in bed as soon as possible, and found she was

wasting some, and some blood was on the floor, but I could not reach the child any more. The pains then mostly ceased, but she complained of smarting, heat and misery all through the belly, therefore I sent for Dr. Portmess, of Newcomerstown."

At the bed side, in that constrained and stretched condition, leaning forward, the fundus of the uterus would, no doubt, fall forward in that relaxed and pendulous abdomen, with ostinca to the sacrum, and then and there was ruptured.

Dr. Portmess stated, that on arriving, he perceived nothing very peculiar, and therefore waited some hours to see if the uterus would not rally again, in natural labour. But finding it would not, gave her *freely* of ergot, which produced no effect, save vomiting of green fluid. He then, on examination for vagina, found the ostinca well dilated and soft, but nothing presenting, therefore, easily passed the hand fully into the uterus, and found it empty, with a rupture from fundus to near the neck, the child, fuids, and placenta having escaped into the abdomen. He then had me sent for, (10 miles) expecting that I would open the abdomen.

On arriving, I found the abdomen extremely large and exquisitely tender on pressure, especially about the umbilicus, which I was informed had been the case for some months, to some extent, the patient frequently emiting a green fluid, which became darker and thicker as time elapsed. .Considerable prostration existed.

On examination for vaginam I found the ostinca so closed that a half hour's effort failed to enter it. Then I passed the hand upwards, without any obstruction, until the child was reached and its position ascertained. In this condition we consulted, whether it would be best to withdraw the hand and leave her to her inevitable fate, open the abdomen externally and extract the child, &c., or deliver from where I was. The last was concluded upon. Accordingly, I brought down one foot, and by and by the other, and delivered it without difficulty, (except the head in pelvis, which took some time) and that too *outside of* the *uterus*. Then in like manner found and delivered the placenta. No hemorrhage. Being obliged to go to Columbus next day, I left her in charge of Dr. Portmess, informing all who inquired, that she probably would not recover. On my return, I learned that she lived five days, and then died with all the symptoms of strangulated bowels, which probably was the case.

The inducement in reporting this case, is, that I suppose it contains some *new* features in obstetrics. I have read considerable, had some experience in cases of ruptured uterus, but if any case is on record where the fœtus and secundines were delivered through the vagina, and yet *outside of the womb*, I have never learned it.

On the sphacelation and separation of parts by the use of the ligature, pressure, &c. A clinical lecture, by Prof. J. W. HAMILTON, at the Surgical Clinic of Starling Medical College for Wednesday, Dec. 21. Reported by T. B. HAMILTON, A. B., Student of Medicine.

Several cases, and some disappointments, which have been experienced in our clinics of late, have tended to fix attention upon the subject of the sphacelation and separation of parts by the use of the ligature. Within the last few weeks, by the use of the ligature, we have removed seven hemorrhoidal tumors. Although several of these were large for this kind of tumor, yet the amount of tissue ligated in even the largest tumors of this kind, is slight. In all the cases operated upon, after pulling the tumor well down we have transfixed its base, or pedicle, and ligated in two lateral halves. It has been the aim in these ligations to make the strangulation immediate and perfect, and thus deprive the parts of vitality at once. In this class of cases the success has been perfect, sphacelation occurring at once, and separation having occurred at an average of about six days, in every case. Ligation, for the purpose of inducing sloughing in vascular tumors, other than hemorrhoidal, has been performed in two instances, when the amount of tissue ligated, although moderate in amount, was much greater than in these cases of piles. One of these tumors, you will recollect, was situated over the left parietal bone, in a child 12 weeks old. It was about 9 by 15 lines in extent. In that case, using a small, but very strong and inelastic flaxen thread, all the power I could command was used in tightening the ligatures. You saw the case a week subsequently; all was sphacelated except a point apparently equal to one-fifth of the surface of a finger nail. A letter from the father, written six weeks after the operation, informs me that the scab had separated, and that the cure is evidently perfect, except at

the point alluded to, where a relict of the original tumor of the extent of a five cent piece, and undoubtedly included within my ligature remains, showing, that in these apparently favorable circumstances, and with the force applied, some portion of the moderate amount of tissue included within the ligature, still escaped complete strangulation.

The other case, alluded to above, is the one in which a vascular tumor of the size of a plum, forming a kind of proboscis, was removed from the upper lip of a child five months old, by the use of the ligature. You will recollect the unsuccessful effort that was made to separate the integument from it, by the use of the knife. This having failed, you will readily recollect the plan and mode of execution of the operation. A well curved needle, loaded with a long, double ligature, similar to the above, was used. The lip and tumor being well everted, the alveolar attachment of the frenum, and the entire lip, close to the nasal spine and nasal septum, were transfixed, the thread drawn through a few inches, and then cut, so as to free the needle. This was now loaded with one of the ligatures that hung from the mouth, and thus loaded the lip was transfixed from the inside, external to the tumor, and a little below a point intermediate to the upper point of transfixion and the prolabium. The other ligature hanging from the mouth was used in the same manner. In this way a V shaped portion of the lip, embracing the tumor, was divided into four nearly equal parts, and ligated as often. These ligatures again were applied with the utmost tension. Yet you will recollect that a small portion of the tumor, probably included within the ligature, required a second ligation.

Again: In the case in which we ligated for anal prolapsus, we had an instructive experience. The circumference of the mass, as shown by careful measurement, was 10½ inches. But it is to be borne in mind that this was by no means the size of the mass to which the ligature was applied. While the mass which rolled out from the anus, in adjusting itself upon the circumjacent parts, was of this size, it is to be borne in mind that the part actually ligated was at the bottom of a deep fissure, which existed between the everted mass and the skin, and that its diameter in reality was about that of the anus in a distented condition, and probably not over from 16 to 18 lines. The plan of the operation was such that this mass was ligated in four equal parts. You will recollect that the hands were wrapped with dry cloths to protect them and prevent the ligature from

slipping, and that every possible physical resource of the operator was brought into requisition in tightening them. The next day the absence of sensibility and the color of the surface seemed plainly to indicate that sphacelation had already occurred. Light incisions, scarcely amounting to more than scarrification of the mucus membrane, were, notwithstanding, followed by copious hemorrhage; indicating that while the return of blood *from* the the ligated structures, was, at least seriously interfered with, its passage *into* them was still effected with facility, and even rapidity.

Accordingly, the death of the parts as the result of this first ligation, did not occur. Partly as the effect of this ligation, and partly as the result of the application of the actual cautery, to arrest the hemorrhage alluded to, about one half of the mass below the ligatures sloughed away, leaving the rest as vascular as ever. To complete the process of mortification, a second ligation was made through the original orifices on the eighth day after the first. This did its work efficiently and promptly.

In this connection, and in the way of explanation, there is another point I wish to impress upon your minds. In performing the usual operation for varicocele, we ligate with firmness, subcutaneously or otherwise, the parts constituting the spermatic cord, exclusive of the vas deferens. The parts are ligated in their continuity, and in their normal relation to surrounding structures. The ligature is applied firmly, is kept on for several days, and then removed. Now, in these circumstances what is the fact, or, rather what is the theory, as to the continuance of ulceration, ultimating in the division of the cord. In a word, it is supposed that the parts, included within the ligature, cease to separate by ulceration, when the ligature is withdrawn. The object of the operation is to occlude the spermatic veins. This is attained, accordingly, by the induction of inflammation, and the effusion and organization of lymph. A legitimate practical deduction, from the theory of this operation, is, that parts even firmly ligated, do not necessarily die, and slough, even within the grasp of the ligature, where that ligature is removed within a few days.

Brodie gives an interesting observation, bearing upon this point. He undertook the removal of a tumor involving a portion of the tongue, by the firm ligation of it. Twenty-four hours afterwards he observed that the patient still seemed to suffer a great deal. It occurred to him that inasmuch as the parts were already dead, he would

lose nothing by cutting his ligatures, while, by so doing, he hoped to relieve his patient's sufferings. He accordingly removed them. A day or two afterwards he was greatly surprised to find that the tumor retained its vitality, and that a repetition of the ligation was necessitated.

This observation of Brodie, and what I have said in reference to the theory of the operation for varicocele, do at least something, in the way of affording us an explanation of the partial failures, attending the above ligation for prolapsus, and those for vascular tumors. Take the case of prolapsus. Supposing that the ligation was effectively performed, why was it, that the death of the part ligated, was not effected?

In offering you an answer to this question, I must ask you to bear in mind that the mass included within each ligature was large; that, furthermore, this mass consisted of mucus membrane, and cellular tissue, with blood vessels; the leading constituent being cellular tissue. The whole made a soft and compressible mass. You will recollect that of all the tissues, the cellular mortifies, and ulcerates with much the greatest rapidity; and that the blood vessels are very slow thus to separate.

Now these facts, duly considered, are supposed to afford an adequate explanation When these ligatures were applied, the circulation, was pretty much suspended. Ulceration of the cellular tissue, however, occurred within the grasp of the ligature, before they were dead, beyond recuperation, to such an extent as to slacken the ligatures, and allow not only of the ingress, but also of the egress of blood; effecting, really, just what Brodie did when he removed his ligature prematurely.

The same explanation applies, to a greater or less extent, to our ligation of vascular tumors. In these cases, however, there were other circumstances entering into the explanation, of which it is not proposed to speak at present.

Now, the object of these remarks is to fix and impress upon your minds a practical precept. In undertaking to effect the separation of parts, by the use of the ligature, endeavor so to plan your operation, as to divide the tissue to be ligated, into as many, and consequently as small parts, as possible. Select a small round ligature; one that is sufficiently strong, and perfectly inelastic. Then, in the application of it, be sure, not only to include all the tissue to be sphacelated within it, but that it is applied with the requisite degree of firmness.

Now, in saying all this, it is difficult to be too emphatic. But I can see that this emphasis is eminently calculated to lead you into difficulty, in another direction. You have, perhaps, already concluded, that if it is so difficult to produce the death of parts as this, that but little is to be apprehended from any ordinary circumstances by which they are compressed or strangulated, or their circulation interfered with. It would quite probably lead, sooner or later, to serious difficulty, should you assume the responsibilities of practice with any such impression. To impress this upon your minds, let me allude to a few cases.

In another connection, you were shown a mortified index finger, the history of which was as follows:

It had been the seat of an aneurism by anastomosis. It was supposed that the aneurismal tumor could be separated from the skin, the leading vessels supplying it ligated, and the rest strangulated by the ligature, &c. After the operation was commenced, the hemorrhage was so profuse, and the ligation of the leading vessels above had so little effect, that a compress of lint was applied, over which a bandage, a half inch wide, was placed, with moderate tension, with a view to arrest the hemorrhage by pressure. Three days subsequently, on removing that bandage, it was found to inclose the mortified finger shown you.

Again: A practitioner in northern Ohio, in regard to whose standing and skill I am not informed, wounded the humeral artery in performing venesection. He undertook to remedy the difficulty in the ordinary way, *i. e.*, by the use of a compress upon the wound, supported by a roller bandage commencing at the tips of the fingers. The arm mortified, an amputation was performed, and a successful prosecution for mal-practice grew out of it.

Again: An enterprising practitioner in Washington county, was called a distance, in circumstances not permitting him to provide himself with surgical instruments, to see a man who had cut the muscles, constituting the calf of the leg, down to the bones, with a mowing scythe. There was profuse hemorrhage from large vessels. For the want of instruments, he could not control the hemorrhage by tieing, according to the rule. He accordingly prepared a firm compress, which he supported in contact with the cut surface with a bandage, so as to control the hemorrhage. The result, however, was mortification, amputation, and an unsuccessful prosecution for malpractice.

These cases, in which mortification was unintentionally or acci-

dentally induced, stand out in very striking contrast with our cases in which the direct and thorough application of the ligature failed to cause it. Why should it occur with such apparent facility in our set of circumstances, and with so much difficulty in another?

It is not easy to make an explanation, covering the whole ground. Yet, in the two classes of cases, given above, there are some general facts, which go far toward it. In the first class of cases the parts to be strangulated are quite proximally related to the centre of the circulation; so that they have, as variously shown in surgical practice, a high standard of vital tenacity. In the same class of cases, soft parts, only, are included within the compressing or constricting ligature; and finally, the arteries and veins are subject to every manner of distribution in the ligated, or compressed mass, and are as likely to be found in the centre of it as elsewhere, and consequently protected, to some extent, from severe compression.

In all the cases constituting the latter class, the part involved is the distal portion of an extremity. They are, consequently, distally related to the centre of the circulation, and, as a consequence, have, as variously shown again, a comparatively low standard of vital tenacity. Furthermore, the part compressed in these cases, in its simplest idea, consists of a large cylinder of bone, surmounted by a stratum of soft parts. In the deeper part of this stratum of soft parts—in other words, in close connection with bone run the main arteries. In the superficial part of it, *i. e.*, in close relation to the compressing agent, the bandage, the veins which return the greater part of the blood, are disposed. In the contemplation of these circumstances we find an adequate explanation.

The standard of vitality is such, in the latter class of cases, as that so great a cause is not necessary to the production of a given effect. Then the physical circumstances in which the arteries and veins are placed, are most favorable for their occlusion, being placed between two firm substances, the bone within, and the bandage without; and, finally, it is to be borne in mind that in all the cases, leading vessels were injured, and their circulation interfered with, in the outset.

PART SECOND.

AMERICAN AND FOREIGN INTELLIGENCE.

Memoir of Priestley. Read before the National Institute of France by M. CUVIER, June 27, 1805. [Translated by C. A. ALEXANDER.]

[The discourses by which the French Academy of Sciences is accustomed to commemorate its deceased members, whether native or foreign, constitute, it is known, a body of highly interesting biographical and scientific literature. Far from being limited to encomium, as the title of "Eloges," by which they are usually called, might suggest, they maintain a tone of candid criticism, and in dispensing justice to scientific discoverers, deal in enlarged and original views of science itself. The names of their authors—of Delambre, Fourier, Cuvier, Arago and others—would teach us to expect no less.

Those delivered by Arago, late perpetual secretary of the academy, have been recently translated and published in England among the works of that distinguished and lamented individual. A few others may be found dispersed through the volumes of scientific periodicals of Great Britain, but as these are little accessible to the general reader, and as many have not been translated which well deserved to be so, it has been thought that a more extended collection than has yet appeared would not be unacceptable to the literary public.

In this view, a translation, not indeed of the whole series, but of such as, having not been already published in this country, may serve to give a connected and popular exposition of the progress of science, has been undertaken at the suggestion of the Secretary of the Smithsonian Institution; and the proposed work will appear under the auspices of the Institution, in so far, at least, as to guarantee the correctness of its views and the fidelity of its execution.

As a specimen of the work, as well as for its own intrinsic interest, the following memoir of one of the most original and ingenius promoters of modern science, who closed his eventful life in our own country, is appended to the present report.]

JOSEPH PRIESTLEY, the subject of the present discourse, was an English clergyman, whose important discoveries in physics occasioned his being chosen a foreign associate of the Academy of Sciences of Paris, and the National Institute lost no time in associating him with itself by the the same title.* As he belonged besides to most scientific academies of his time, it may be that the homage which we this day render him has been already offered to his memory in all the great capitals of the civilized world.

This unanimity of commendation will appear the more encouraging to the friends of enlightenment, and attest more strikingly the

* The Academy of Sciences, with its kindred bodies, having been suppressed by a decree of the convention in 1793, was replaced in 1795 by the National Institute, divided at first into classes, which, on the restoration of the monarchy, again received the name of academies.—TR.

irrepressible influence of true merit, when it is considered that he who was its object used no address or management in securing it; that, on the contrary, his life was one of almost ceaseless controversy; that he seemed on all occasions to take pleasure in contesting the most accredited opinions, and attacked without scruple the most cherished interests of certain classes of men.

It is true that this excessive ardor in the assertion of his own ideas drew upon him the bitterest resentments, exposed him to all sorts of calumny, and more than once rendered him the victim of cruel persecution. A mob, excited by the false reports of his enemies, snatched from him in a single day the fruits of all his labors, and only by withdrawing from his country did he succeed in baffling the fury of his persecutors. But when his own countrymen seemed to forsake him, there were others eager to offer him an honorable asylum. And now, when the principal literary institution of a nation at war with his own, tenders him through my voice the last sad tribute which it owes to all its members, I see among the audience many to whom Priestley has been heretofore opposed, who yet seem to join their suffrages with mine, and crown by their generous concurrence the measure of his triumph.

Science and philosophy will have nothing to fear from their bigoted adversaries so long as such a recompense shall await the man who has enlarged the noble edifice of our knowledge; so long as genius shall be regarded apart from its merely local relations, and the development of new truths shall procure indulgence for any incidental waywardness, singularity, or even rashness of opinion; for it must not be dissembled that in matters of opinion Priestley has made himself liable to exceptions of this nature.

In effect, his history will exhibit him in the light, as it were, of two different—I had almost said, two contrasted—individuals.

One, the circumspect observer of nature, confines himself to the examination of objects which lie within the domain of experience, subjects every procedure to a strict and cautious logic, indulges neither in speculation nor prejudice, but seeking only truth, whatever it may be, seldom fails to discover and to establish it in the most satisfactory manner: the other shows us the adventurous theologian, who grapples boldly with the most mysterious questions, rejects authority, however consecrated by the respect and belief of ages, and, abandoning himself to the heat of controversy, with opinions formed in advance, evinces as much solicitude for the success as concern for the validity or even consistency of his hypotheses. The former calmly resigns his discoveries to the examination of the learned, and finds them received without hesitation, and his own merit acknowledged without contradiction: the latter invests himself in the warlike panoply of erudition and metaphysics, attacks with little discrimination whatever sect or dogma presents itself, and too often revolts the conscience by the aggressive zeal with which he seems bent on subduing it.

It is against the divine, the minister of peace, that all are in arms; he is accused of exciting animosity, arousing vengeance, and troub-

ling society. The physical inquirer, on the other hand, meets with invariable respect; every one acknowledges that, in the defence of truth, he relies only upon reason, that his discoveries are directed solely to the welfare of his fellow-men, and that his writings breathe nothing but a spirit of candor and of modesty.*

Thoroughly to know Priestley, then, it is necessary that he should be sketched under both these characters; that the theologian, metaphysician and politician should be reproduced, no less than the ingenious physicist and associate of the National Institute. At the same time there can be no mistake as to the comparative prominence which should be given, on the present occasion, to one or the other, and as little probably as to the interest which posterity is likely to attach to them. He has himself somewhere remarked that, as a means of lasting renown, the labors of science are as far superior to all others as the laws of nature to the organization of societies; and that no statesman who ever rose to power in Great Britain has approached in celebrity its Bacons, Newtons, and Boyles; a maxim somewhat exaggerated, perhaps, but which it would have been fortunate if he had always kept before his own eyes Priestley, however, is not the first celebrated man whose judgment has shown itself incapable of mastering his character.

Meanwhile, it is to be carefully noted, that in no respect did his divergent opinions influence his conduct, but that, with the exception of the unmerited misfortunes which overwhelmed him in old age, the whole course of his life was alike uniform and simple. The mere list of his works would indicate as much; for, when it is known that he produced more than a hundred treatises, no one can suppose that society engrossed much of his time, or that his history can consist of much more than an analysis of his writings.

He was born at Birstal-Fieldhead, near Leeds, in 1733. His father was a cloth-dresser; his first master a dissenting minister. After several years study he obtained the situation of [tutor in the Belles Lettres†] at the provincial academy of Warrington, and afterwards became pastor of a congregation of dissenters at Leeds. Lord Shelburn, secretary of state, and afterwards first marquis of Lansdowne, under a sense of Priestley's merit [which had then been established by his first discoveries] induced him to accept the position of [his lordship's librarian and philosophic companion, with a salary of £250, reducible to £150 for life should he quit the employment.] This connexion was terminated, without loss of confidence or friendship on either part, at the end of seven years, and Priestley resumed his pastoral functions among the dissenters at

* Whether the contrast here presented be not pushed, in the spirit of antithesis, to too great a length, will probably be differently decided, according to the previous views of the reader. But that, in some of his metaphysical speculations and interpretations of prophecy, Dr. Priestley has laid himself open to the charge of temerity, will be denied by few; nor is it surprising that Cuvier should regret that such astonishing activity of intellect had not been restrained to the paths of induction, where he himself had found so secure a footing.—Tr.

† The words within brackets are from Lord Brougham's "Lives of Philosophers of the time of George III."

Birmingham. Here he remained eleven years, up to the time of the disturbances which compelled him to quit that city, and determined him to seek a refuge in the United States. Such is the brief, yet complete, outline of his private life; the history of his works, as it is more important, must be more extended.

The first of them were intended for the service of education, and an English grammar, his earliest production, is still used in the schools of Great Britain. His historic and geographic charts deserve to be used everywhere for the ingenious manner in which they represent the origin and fall of each State, and the career of every celebrated man. His lessons on history evince both the comprehension and knowledge requisite for a profitable study of the revolutions of nations. Those on oratory and criticism are recognized as useful guides to the exercises of the young.*

This didactic form was that which he still employed in his first works on physics; his histories, namely, of electricity and optics, and his elements of perspective. The history of electricity was judiciously timed, for it appeared just when Franklin, by the boldness and success of his investigations, had thrown the brightest lustre around this interesting branch of physics, and as all that had been done up to that date was here presented in a clear and concise form, it was translated into several languages, and first drew some notice in foreign countries to the name of its author.

The ungrateful task, however, of recounting what had been done by others was not long to limit the activity of Priestley He proceeded without loss of time to place himself in the line of physical discoverers, and it was chiefly by his researches into the different kinds of air that he merited that title, and established the most durable monument of his own renown.

It had long been known that many bodies give out air and that others absorb it under certain circumstances. It had been observed that the air of neglected privies and of the bottoms of wells, with that evolved by fermentation, extinguishes light and destroys animal life. A light air, also, had been observed in the interior of mines, floating mostly about the vaults of the passages, and kindling sometimes with fearful explosions. The former had received the name of *fixed* and the latter that of *inflammable* air. They are the same which we now call *carbonic acid* gas and *carburetted hydrogen*. Cavendish had determined their specific gravity; Black had ascertained that it is the fixed air which renders the alkalies and lime effervescent; and Bergman had not been backward in detecting its acid properties. Such was the state of knowledge in these particulars when Priestley laid hold of the matter and treated it with a felicity altogether peculiar to himself.

Happening to be lodged, at Leeds, next door to a brewery, he had the curiosity to examine the fixed air which is exhaled from beer in

* Referring to these productions, Lord Brougham remarked: "It is difficult to imagine anything more adventurous than the tutor of an academy afflicted with an incurable stutter, and who devoted his time to teaching and theology, promulgating rules of eloquence to the senators and lawyers of his country."

fermentation, with reference to its deleterious influence on animal life and its property of extinguishing the flame of candles.

His experiments having given him some remarkable results, he was induced to extend them to inflammable air.

In aiming to determine all the circumstances in which these two kinds of air manifest themselves, he soon remarked that in many instances of combustion, especially during the calcination of metals, the air in which such operations are conducted is altered in its nature, without there being either fixed or inflammable air in the product. Hence his discovery of a third species of deleterious air, which he named *phlogistic air*, and which has been since called *azotic* (or nitrogen) gas.

He had availed himself of small animals to test the pernicious action of these different products, and was thus obliged to give pain to sentient beings. His character is displayed in the joy which he felt when the discovery of a fourth species of gas enabled him to dispense with this cruel expedient. This was *nitrous air*, which has the property of suddenly diminishing the volume of any other with which it mixes, very nearly in the proportion in which that other air is respirable, and which consequently affords the means of measuring to a certain point the degree of salubrity possessed by different kinds of air.

This discovery, which was the origin of that branch of physics known as eudiometry, was of great importance; all the natural sciences were interested in possessing such a measure, and medicine, above all, might have turned it to account but for the difficulty of introducing scientific processes into the practice of even the most scientific arts.

Combustion, fermentation, respiration, and putrefaction are found to produce sometimes fixed air, sometimes inflammable, and sometimes phlogistic air. There is thus no end to the causes which may vitiate the atmosphere, and yet its purity has undergone no sensible alteration during all the time those causes have been acting. Hence it follows that in nature there must exist some constant means of restoring that purity.

Priestley detected these means in discovering that vegetables posses the property of decomposing fixed air during the day, and that they thus purify the atmosphere. This property, besides being the first key to the whole vegetable economy, when taken in connexion with that exerted by animals of vitiating the air by respiration, disclosed then, what has since been better developed, that the restorative energies of life consist chiefly in a perpetual transformation of elastic fluids

Thus these discoveries respecting air opened an altogether new field to the researches upon living bodies, and shed a light on physiology and medicine till then unknown. But still more unexpected and brighter rays were soon to issue from the same focus.

Having applied the heat of a burning-glass to the calx of mercury, Priestley had the good fortune to obtain, in a pure and isolated state, that respirable constituent of atmospheric air which animals con-

sume, vegetables restore, and combustion alters. He named it *dephlogisticated air.*

The other aeriform fluids which differed from the atmospheric air had been found to extinguish lights: this caused them to burn with a brighter flame and with wonderful rapidity. The others deprived animals of life: in this they lived longer than in even the common air, without need of renewing it, while their faculties seemed to acquire from it a greater energy. For the instant it was imagined a new means of existing, and perhaps of prolonging life, had been discovered, or at least an assured remedy against the greater part of the maladies of respiration.

This hope has proved deceptive, but dephlogisticated air has not the less remained one of the most brilliant discoveries of the eighteenth century; it is this which, under the name of oxygen, modern chemistry regards as one of the most universal agents of nature. By its means all combustion and calcination are effected; it enters into the composition of all acids; it is one of the elements of water, and the great reservoir of fire; to it we owe almost all the artificial heat which we procure in common life and in the arts; this it is which, in respiration, gives to all animated bodies their natural warmth, and furnishes the material principle of their movements. The energy of different kinds of animals is in proportion to the force of its action upon them, and in the growth of vegetables there is no period when they do not combine with or disengage it in different manners. In a word, physics, chemistry, and physiology, both animal and vegetable, have scarcely a phenomenon which they can entirely explain without the element in question.

What has been said is but a slight sketch of the most remarkable discoveries of Priestley; time forces us to neglect a multitude of others which would of themselves furnish ample materials for the eulogy of another man. Each of his experiments has proved fertile in consequences, and it can scarcely be doubted that there are some of them which only await a closer attention to become the germ of new and important deductions.

His labors, as might be expected, were received with general interest; his works translated into all languages, and his experiments repeated, varied, and commented upon by the ablest inquirers. For his earlier researches on phlogistic air the Royal Society had awarded him Copley's medal, which is bestowed for the most important physical labor made public within the year, and which England regards as the noblest prize of scientific merit. The Academy of Paris accorded him a prize not less noble, and, because rarer, of more difficult attainment, the place of one of its eight foreign associates; an object of competition to all the scientists of Europe, and whose list of names, commencing with those of Newton, Leibnitz and Peter the Great, has never degenerated from that original splendor.

Priestley saw with surprise this accumulation of honors, and modestly wondered at the multitude of precious truths which nature seemed to have reserved for his sole discovery. He forgot that her favors are never gratuitous, and that if she had so freely disclosed

herself, it was because he had known how to extort her answers by the indefatigable perseverance of his inquiries and the number and variety of his expedients. While others sedulously conceal how much they owe to hazard, Priestley seemed inclined to credit it with everything. He tells us, with unexampled candor, how often he was indebted to it unconsciously, how often new substances presented themselves to him without being recognized; nor does he ever dissemble the erroneous views which sometimes governed him, and from which he was only detached by further experience.

These avowals did honor to his modesty, without disarming jealousy. Those, whose own views and methods had proved abortive in discovery, called him a mere experimenter, without method or design; no wonder, they observed, if, among so many trials and combinations, some should be lucky.

But the true physicist is not to be duped by such interested criticisms. He is well aware how many efforts it costs to arrive at those happy ideas which are the source and regulating principle of all others; while the very men who have thought fit to augment our admiration of their own great achievements in science by the luminous order in which they propound them, will be far from taking it amiss, that others, like Priestley, have chosen to give us their discoveries just as they made them, and have ingeniously retraced all the windings of the path over which they have traveled.

This peculiarity results from his manner of composition. We have here no finished construction, no digest of theorems rigidly deduced the one from the other, as they may be supposed to present themselves in the conceptions of pure reason. What he has given us is the journal of his thoughts in all the disorder of their succession, wherein we see him at first feeling his way in profound obscurity, spying out the faintest rays of light that he may collect and reflect them, sometimes misled by a treacherous and transient glimmer, but sure to arrive in the end at some region of vast extent and fertility.

Should we be displeased if the great masters of the human race, an Archimedes or a Newton, for instance, had thus admitted us to the confidence of their genius? Newton, when asked how he arrived at his great discoveries, replied: "By long thinking about them." With what pleasure should we not have learned that long series of thoughts by which Newton was conducted to that master thought which has inspired the meditations of all his successors. If his works at present teach us to appreciate the forces of nature, we should, by thus knowing the actual processes of his mind, have been enabled thoroughly to comprehend that noblest of nature's works—the genius of a great man.

We must not suppose, however, that the discoveries of Priestley were all perceived by himself, or that they were set forth in his writings as clearly or in the same manner as we should now state them. At the time of making them he knew no chemical theory but that of Stahl, and this, being founded on experiments in which air was taken no account of, was of course incapable of providing

for its phenomena. Hence there results a degree of hesitation as to principles, and of embarrassment and uncertainty as to results. Seeking everywhere for phlogiston, Priestley is obliged to suppose it differently constituted. He finds it now in fixed air, which is heavy and acid; now in inflammable air, which is light; and again in phlogisticated air, which has no property of the other two. Sometimes there are cases where an accumulation of phlogiston diminishes the weight of the combination and communicates an absolute levity to the mixture; in other cases it produces a directly contrary effect. Thus there is no uniformity, nor is it possible to arrive at any general and precise conclusion.

That conclusion it was left for modern chemistry to draw, and for this purpose it has needed but one or two formulas. *There is no such thing as phlogikton; pure air* (or oxygen) *is a simple substance, as are also phlogisticated air and inflammable air; combustion is only the combination of pure air with combustible substances.* These few words have served to disembroil the chaos; every fact has fallen into its proper place, and chemistry has emerged in the fair and consistent form in which we possess it.

But chemistry, like the gods of the pagans, could create nothing out of nothing; elementary material was still needed for its disposal, and this material Priestley, beyond all others, has furnished. Under this point of view, therefore, he may justly be considered one of the fathers of modern chemistry, and be worthily associated with the authors of that celebrated revolution in science. He was a father, however, who never consented to recognize his offspring.

His perseverance in combatting on behalf of his original ideas has probably no parallel. Without being shaken in his convictions he saw the most skillful defenders of those ideas pass into the opposite camp; and when Kirwan, the last nearly of all of them, abjured the phlogistic doctrine, Priestley, unsupported and alone, still occupied the field and addressed a new defiance to his opponents, the principal French chemists of his time.

This challenge was at once taken up and replied to by Adet, who was then ambassador of France to the United States, and thus proved himself a worthy representative of French chemistry. The new arguments of Priestley against that theory originated, in fact, from his own want of familiarity with the operations of more recent chemistry, however ingenious and dexterous he might be in those processes which he had himself created. When he drew fixed air from substances into which he did not suspect it of having entered, he would deny that it invariably owes its origin to the carbon. And in forming water from oxygen and hydrogen, though a small quantity of nitric acid was always present, he would take no account of the portion of azote which produced it.

His later writings failed, accordingly, to bring back to his opinion any of those who had abandoned it. Like so many others who have endeavored to arrest movements first communicated to themselves, he experienced that ideas once dispersed abroad are as the seed whose product depends upon the laws of nature, and not the will of

those who have scattered them. To which we may add that, when they have once taken root, no human power is any longer capable of eradicating them.

It remains now to trace, with painful interest, the career of Priestley in that other branch of his labors to which reference has already been made. We have just seen him marching from one success to another in the cultivation of the merely human sciences, which he looked upon only as the employment of his leisure moments. We must now observe him engaged in the struggle to unveil those first principles which the nature of things hides from our reason beneath the folds of impenetrable mystery, striving to force the world into an acceptance of his conjectures, consuming almost his whole life in these fruitless efforts, and sinking at last into an abyss of misfortune.

Every indulgence will be here needed, as well for the recital as its subject. It may even appear to some that such details are out of place before this audience; but where else ought the admonition they afford to be listened to with more interest?

It has been already said that Priestley was an ecclesiastic; it must now be added that he passed successively through three creeds or forms of belief, in arriving at one which he could conscientiously adopt as the basis of his teachings.

Reared in all the severity of the Presbyterian communion, which is called Calvinistic in France, he passed at the age of twenty years into the ranks of Arianism. * * * * Arianism, while holding Christ to be a creature, regards him as a Being of superior nature, produced before the world, and himself the organ of the Creator in the production of other beings. It is the doctrine which the "Paradise Lost" has invested with so magnificent a garb of poetry. Priestley professed it for a length of time, and then abandoned it to become what we should call in France, a Socinian. Few, perhaps, of those who hear me know in what these two sects differ; but the Socinians deny the pre-existence of Christ, and regard him only as a man, though they revere in him the Saviour of the world. This subtle distinction between two creeds occupied for thirty years a head which the most important questions of science might rightfully have claimed, and was to Priestley the occasion of incomparably more pages than he has written on the different kinds of air. * * * * * * Nor was he less peculiar in the metaphysical part of his creed. It seems to have been demonstrated by the sounder metaphysics of modern times that it is impossible for the thinking substance to take direct cognizance of its own proper nature, just as it is impossible for the eye to see itself. For any such purpose, to contemplate itself or compare itself with other existences, it should be able to do so from without, while it is only within and through its own peculiar modifications that it perceives, or receives the impression of those existences Priestley either overlooked or disregarded these conclusions. In his views, Scripture and experience agree in making the soul material; the fibres of the brain are the depositary of the images produced by the senses, while the power which these fibres possess of communicating

their vibrations to one another is the source of the association of ideas. Sensation perishes with the body, but will revive with it at the day of resurrection, in virtue of the will and power of God. Till then we shall sleep in absolute insensibility; the distribution of punishments and rewards awaits us only thereafter.*

A material soul must necessarily be submissive to exterior impulses, and thus absolute necessity, not free will, becomes the law of our determinations If rewards and punishments are attached to our conduct, it is only to give one more determining cause in favor of virtue.

These doctrines are, many of them, those of the earlier Socinians, to which Priestley only brought the support of new arguments. Without stopping to discuss questions so foreign to the ordinary studies of the Academy, and which it is enough to have briefly recalled, it is proper to say that he sustained his opinions with but too much skill. Even his adversaries give him credit for great erudition and singular dexterity in combining and disposing of his resources, and look upon him, therefore, as one of the strongest controversialists and enemies of orthodoxy in these latter times. * * * *

It might be thought that in rejecting so many opinions, Priestley had but one more step to take to fall into the most absolute incredulity. But this he never did; on the contrary, it seemed to please him to occupy in theology, as in physics, a post by himself, which, however perilous, he distrusted not his own courage or ability to defend. Those who went farther than himself, or not so far, the orthodox and the skeptical, were alike the objects of his attack, and wherever, in all Europe, anything appeared which seemed to menace, in the least degree, either revelation in general or his own manner of interpreting it, *that* he felt himself called upon to refute. His activity in this species of warfare was without bounds; atheists, deists, Jews, arians, quakers, methodists, calvinists, church of England men, the catholics, were all taught to recognize him as an opponent. There are publications of his against each of these forms of belief, the very titles of which it would be almost endless to recite.

A proof that all this was done in good faith is the fact that he thought himself authorized to predict from Scripture events that were near at hand. Prophets who have not his confidence take care to postpone the accomplishment of their productions, so as not to have them falsified during their own lifetime. But Priestley felt more secure of his facts; he published, in 1799, an address to the Jews, in which he announced to them, from the revelations of Daniel and St. John, their speedy re-establishment in Palestine, with a re-

* It should be remarked that the above is far from being an accurate representation of the materialism of Priestley, which should not be confounded with the grosser forms of that doctrine. He had adopted the theory of Boscovich, as presented in the *Theoria Philosophiæ Naturalis*, &c., in 1758, according to which matter consists in emanations of force from definite portions of space, and is in reality devoid of any other substratum —Tr.

union of all creeds and the foundation of a reign of glory. Besides the calculation according to years, which referred this great event to the commencement of the nineteenth century, it was to be heralded by such tokens as the destruction of the papal power, of the Turkish empire, and of the kingdoms of Europe. The French monarchy, firm as it seemed, had already fallen; the rest would soon follow; the Pope was dethroned and in exile; the Turk only subsisted through the compassion of his neighbors. Priestley lived long enough to see the failure of at least a part of these supposed tokens.

Details like these, however extraordinary, could not be passed in silence, for the *eloges* of the Academy are historic, and, as was expressly prescribed by the first and most illustrious of our predecessors, are bound on every occasion to a fair exposition of the *pro* and *con*. Nor can it be otherwise than useful to observe, as in the present example, to what lengths the finest genius may be misled when it attempts to overleap the limits which Providence has ascribed to our understanding. There is even more instruction in the errors of such a man as Priestley, than in his actual misfortunes; for where is the generous mind that would not suffer even greater misfortunes than his if it were only sure of having announced truth and vindicated right?

Yet it was not precisely the theology of Priestley which occasioned his misfortunes; in England every one dogmatises as he pleases. It was his politics, too closely allied to that theology; the politics of dissenters being in almost every case the politics of opposition.

We have been accustomed, in France, to consider protestants as republicans from religion; they are only so from oppression. In Ireland it is the catholics who pass for republicans, while the protestants, who rule, are royalists, because the king is of their party. The natural opposition is more vehement in England than elsewhere, precisely because there dissenters are tolerated by halves, and only by halves. Excluded from honors and employment, they are constrained to the rigid payment of tithes for a form of worship which is not their own. Their children are not even admitted into the national universities, and yet, influential both from their numbers and wealth, they are left at full liberty to assemble, to debate, to print —to exercise, in fact, every means of inflaming their resentments.

For thirty years Priestley was the most eloquent, bold and persevering organ of their grievances. He put forth twenty volumes in this service. In this service solely did he write against the celebrated treatise in which Burke predicted in so true and startling a manner the evils which must flow from the French revolution Apparently the object of Priestley's reply was not well understood in France. for he owed to this his nomination as French citizen and member of the convention, two titles which, at that time, seemed to sit but ill on so warm a defender of revelation and universal toleration. The first he did not decline, but the exercise of the second was evaded on the plea that he did not sufficiently understand the French language.

Without pronouncing as to the substance, it must be conceded that the political writings of Priestley unite a rare moderation in terms to a consistency of principle not less rare. He asks nothing for dissenters which he does not equally ask for catholics, and with more urgency for the latter as the greater sufferers. No catholic has more vividly painted the oppression under which nine-tenths of the Irish people labor.

I know not what gratitude the catholics may have evinced for these efforts of a unitarian in their behalf, but this extension of his good will had no tendency, we may well conceive, to reconcile him with the Anglican party. To the high churchmen he had become by these means the object of a concentrated hostility; those who wrote against him were held in peculiar favor, and in some cases were, on this very account, rewarded with prelacies; which led Priestley pleasantly to observe "that he might be considered as holding the portfolio of such benefices in his own hands." But the aversion he inspired did not stop within these venial limits; there is too much reason to think that the popular turbulence of which he was the victim was greatly fomented by the intemperate writings and discourses of ministers of the establishment.

The first movements of the French revolution had at that time wrought division, not only in France, but in all the States, cities, and even families of Europe. As yet there was no outbreak but in France, but men disputed everywhere, and, strange to say, it was precisely in the freest countries that the greatest ardor for revolution manifested itself. Under these circumstances, the partisans of the British government had recourse to means of which the enemies of government in France were setting a successful example, and prompted the popular riots by which the revolutionists, or those suspected of being such, were assailed.

Not the least formidable of these riots was that which occurred at Birmingham, July 14, 1791. A banquet was given on that day by persons of different sects, including some episcopalians, to celebrate the anniversary of the attack upon the Bastile, and it was reported that Priestley was the chief promoter of the festival. As his enemies had spared no means of inflaming the popular mind, resorting even to the fabrication of tickets of invitation replete with sedition, and of toasts steeped in criminality or absurdity, a heated crowd is soon collected; the calumny circulates and is aggravated by the most odious imputations; and the tavern finally, where the guests are assembled, is assaulted and sacked. The furious multitude exclaim aloud against Priestley; he is the organ of dissent, the file leader of revolution, the man against whom has long been levelled the hatred of every true friend of his country. The moment has arrived when they can avenge themselves.

The unfortunate philosopher, so far from participating in the dinner, was ignorant of what was imputed to him and of all that was passing in the city. But an excited rabble listens to nothing; they conclude that he has taken flight, and proceeded with torches and other instruments of destruction to his mansion.

This was a modest retreat, half a mile in the country, where he lived with his wife and two sons in the simplicity of ancient manners. Here it was that he had received the homage of men illustrious by birth or merit, none of whom would have been content to leave England without seeing him; and here, for eleven years, he had divided his time between the pursuit of science, the instruction of youth, and the exercise of that charity which he considered the first duty of his ministry.

Here there was only one ornament to be seen, only an incomparable one; the rich collection of instruments, in great part devised and constructed by himself; the focus from which had radiated so many new truths, and which had diffused inestimable benefits among those who now rushed to its destruction; for these were almost all artisans of Birmingham, and among the numerous manufactures of that city, there is scarcely one which does not owe some improvement in its processes to the discoveries of Priestley.

But what avails gratitude against the spirit of party, or does the people know ought of services of this kind? All was laid in ashes; apparatus, in which experiments designed for the solution of important questions had been for months in process of development, records of the observations of many years, works in course of preparation, a large library, enriched with notes, additions and commentaries, were, in a few moments, with the house itself, utterly destroyed.

It was truly afflictive that such a man should thus see the fruits of forty years of honorable assiduity and wise economy suddenly snatched away—a loss not merely of his moderate fortune, which he might have disregarded, but of the works of his hand, the conception of his genius, the fund which he had reserved for the meditations and employment of his remaining life. Fortunately, his family had been apprised of the approach of the mob, and had withdrawn him in time from the dreadful spectacle.

The riot continued three days, and the houses of his friends underwent the same fate with his own. As usual, it was the victims who were accused, and the public journals failed not to announce that there had been discovered among the papers of Priestley the proofs of a wide-spread conspiracy.

This calumny is sufficiently refuted by the fact that he openly resided two years more near London, in the college of the dissenters at Hackney, where he succeeded the celebrated Dr. Price in the professorship of chemistry. There was time enough to bring him to justice, and no want of zeal on the part of his accusers, if there had existed the slightest proof.

They confined themselves to painting him in the most odious colors in political pamphlets and periodicals. Few instances can be found of such overflowing rancor, nor would it be easy to credit this rage of defamation against a man who conferred so much honor on his country, had we not before our eyes the examples which the last fifteen years have furnished of the power of party spirit to envenom men's opinions, and those which the last fifteen centuries exhibit of

the fury with which personal crimination may be urged when the pretext is religion.

Nothing in the character of Priestley seemed calculated to produce such hostility; his sentiments were never influenced by his controversies, as might be shown by his friendly intimacy with Dr. Price, though they had often written against each other. So far from any turbulence or haughtiness of manner, his conversation was always noted for the same modesty which pervades his writings, and nothing was easier with him than to say, *I do not know*—words which the generality of professedly learned men find it so difficult to pronounce. His countenance bore rather the impression of melancholy than of animation, though he was by no means indifferent to the company of his friends, and enlivened their intercourse with a natural and becoming gaiety. This man, so profound in many parts of science, passed several hours of each day in teaching the young. This was with him a favorite occupation, and his pupils still revere his memory with filial tenderness, many of them with genuine enthusiasm.

But no consideration could induce him to pause when he thought there was some truth to be defended, and this trait of character, so admirable in itself, destroyed the effect of more amiable qualities and constituted the torment of his life; because he carried it to exaggeration, and because he forgot that reasoning is the least of the means which must be used to make men adopt opinions which conflict with their habits of thought or temporary interests.

The insults heaped upon him, and the fear of again compromising the lives and fortunes of his friends, at last made a sojourn in his own country intolerable. In his new engagements at Hackney, industry and patience might repair, as they had already in part repaired, the disasters of Birmingham; but this consideration was not sufficient to detain him; and as coming to France during the war would have given countenance to the charges of his enemies, he could see no chance of repose except in the United States of America. Yet was it some time before he found it even there; English prejudices followed him beyond the seas, and not until the accession of Jefferson to the Presidency was he free from the apprehension of being obliged to quit that asylum.

The dedication of his Ecclesiastical History to that great magistrate, in acknowledgment of the tranquility restored to him, and the reply of Jefferson, afford a noble specimen of the relations which may subsist between men of letters and men in place without humiliation to either.

Priestley proposed to consecrate the rest of his life to the work just mentioned, in which he intended to comprise the development and proofs of all his theological opinions; but he was arrested at the fourth volume by a fatal accident. His food, by some unknown means, proved one day to have been poisoned;* his whole family

* The statement made here, as well as in some other works, of the poisoning which occasioned the decline and death of Dr. Priestley, rests on little or no authority.—*Translator*.

was placed in jeopardy, and his own health languished from that time forward. A gradual decay terminated his life after three years of suffering. He died at Northumberland, in Pennsylvania, February 6, 1804.

His last moments were marked by the effusions of the same piety which had animated him through life, and which, from not being well regulated, had occasioned all its errors. He caused the Gospels to be read to him, and thanked God for having granted him a useful life and peaceful death. Among his chief blessings he ranked that of having personally known all his celebrated cotemporaries. "I am going to sleep like you," he said to his grandchildren, who were brought to his bed-side; "but we shall all awake together," he added, looking towards the attendants, "and I trust to everlasting happiness." These were his latest words, and they bear witness to the belief in which he died.

Such was the end of a man whom his enemies accused of wishing to subvert all religion and morals; but whose chief fault was to have misconceived his vocation, and to have attached too much importance to his private sentiments in matters where the most important of all sentiments must be the love of peace.

[Note.—We are informed by Lord Brougham that, on settling at Warrington, "Priestley married the daughter of Mr. Wilkinson, a respectable iron master in Wales. She was an amiable woman, and endowed with great strength of mind, which was destined afterwards to be severely tried." By her he had three sons and one daughter, of whom the youngest son, Henry, the peculiar companion of his father's agricultural labors at his new home, in Pennsylvania, died at the age of eighteen, in 1795. The mother died ten months later. "These blows," says Lord B., "though he felt their weight, did not at all crush him; his resignation was exemplary, and his steady, enthusiastic faith in revelation gave him a certain hope of meeting, before many years should elapse, with those whom he had lost. It was, indeed, quite evident that religion was as much an active principle in him as in any one who ever lived. Not only is it always uppermost in his thoughts, but he even regards temporal concerns of a public nature always in connexion with the Divine superintendence, and even with the prophecies of Scripture. His letters are full of references to those prophecies as bearing on passing events, and he plainly says that, since his removal to America, he should care little for European events but for their connexion with the Old Testament. He also looked for an actual and material second coming of Christ upon earth."

The descendants of Dr. Priestley appear, from an account received through the courtesy of a grandson, Joseph R. Priestley, to be widely dispersed. Not only do several of them remain in his native country, at London and Birmingham, but others are to be found at Northumberland, Pennsylvania, where he settled in this country; at New Orleans; at Atlanta, in Georgia; and even at Melbourne,

in Australia. He was buried at Northumberland, and the following is the inscription on his tomb:

To

The memory of the Reverend

Dr. Joseph Priestley,

Who departed this life on the 6 Feb., 1804,

Anno ætatis LXXI.

"Return unto my rest, oh my soul, for the Lord hath dealt bountifully with thee: I will lay me down in peace and sleep till I awake in the morning of the resurrection."]

Alexander von Humboldt.

Alexander von Humboldt died at Berlin on Friday the 6th of May, having been ill with a severe catarrh, accompanied with fever, since the 17th of April.

Eulogy by Prof. Agassiz, before the American Academy of Arts and Sciences, delivered on the 24th of May.

Gentlemen:—I have been requested to present, on this occasion, some remarks upon the scientific career of Humboldt. So few days have elapsed since the sad news reached our shore, that I have had no time to prepare an elaborate account of that wonderful career, and I am not myself in a condition in which I could have done it, being deprived of the use of my eyes, so that I had to rely upon the hand of a friend to make a few memoranda on a slip of paper, which might enable me to present my thoughts in a somewhat regular order. But I have, since the day we heard of his death, recalled all my recollections of him; and, if you will permit me, I will present them to you as they are now vividly in my mind.

Humboldt (Alexander von Humboldt, as he always called himself, though he was christened with the names of Frederick Heinrich Alexander] was born in 1769, on the 14th of September, in that memorable year which gave to the world those philosophers, warriors and statesmen, who have changed the face of science and the condition of affairs in our century. It was in that year that Cuvier also and Schiller were born; and, among the warriors and statesmen, Napoleon, the Duke of Wellington and Canning, are children of 1769—and it certainly is a year of which we can say that its children revolutionized the world.

Of the early life of Humboldt, I know nothing; and I find no records except that in his tenth year he lost his father, who had been a major in the army during the seven years' war, and afterwards a chamberlain to the King of Prussia. But his mother took excellent care of him, and watched over his early education. The influence she had upon his life is evident from the fact that notwithstanding his yearning for the sight of foreign lands, he did not begin to make active preparations for his travels during her lifetime. In the winter of 1787–88, he was sent to the University of Frankfort, on the Oder, to study finance. He was to be a statesman; he was to enter high offices, for which there was a fair chance, owing to his noble birth and the patronage he could expect at the court. He remained, however, but a short time there.

Not finding those studies to his taste, after a semestre's residence in the University, we find him again at Berlin, and there in intimate friendship with Willdenow, then professor of botany, and who at that time possessed the greatest herbarium in existence. Botany was the first branch of natural science to which Humboldt paid especial attention. The next year he went to Göttingen, being then a youth of twenty years; and here he studied natural history with Blumenbach; and thus had an opportunity of seeing the progress zoology was making in anticipation of the great movement by which Cuvier placed zoology on a new foundation. For it is an unquestionable fact, that in first presenting a classification of the animal kingdom, based upon a knowledge of its structure, Blumenbach, in a measure, anticipated Cuvier; though it is only by an exaggeration of what Blumenbach did that an unfair writer of later times has attempted to deprive Cuvier of the glory of having accomplished this object upon the broadest possible basis. From Göttingen he visited the Rhine, for the purpose of studying geology, and in particular the basaltic formations of the Seven Mountains. At Mayence he became acquainted with George Forster, who proposed to accompany him on a journey to England. You may imagine what an impression the conversation of that active, impetuous, powerful man made upon the youthful Humboldt. They went to Belgium and to Holland, and thence to England, where Forster introduced him to Sir Joseph Banks. Thus the companions of Capt. Cook in his first and second voyages round the world, who, already venerable in years and eminent as promoters of physical science not yet established in the popular favor, were the early guides of Humboldt in his aspirations for scientific distinction. Yet Humboldt had a worldly career to accomplish. He was to be a statesman, and this required that he should go to the Academy of Commerce at Hamburg. He remained there five months, but he could endure it no longer, and he begged so hard that his mother allowed him to go to Freyburg and study geology with Werner, with a view of obtaining a situation in the administration of mines. See what combinations of circumstances prepare him for his great career, as no other young man ever was prepared. At Freyburg he received the private instruction of Werner, the founder of modern geology, and he had as his

fellow student no less a man than Leopold von Buch, then a youth, to whom, at a later period, Humboldt himself dedicated one of his works, inscribing it "to the greatest geologist," as he was till the day of his recent death. From Freyburg he made frequent excursions to the Hartz and Fitchtelgeberg and surrounding regions, and these excursions ended in the publication of a small work upon the Subterranean Flora of Freiberg [Flora Subterranea Fribergensis], in which he described especially those cryptogamous plants, or singular low and imperfect formations which occur in the deep mines. But here ends his period of pupilage.

In 1792 he was appointed an officer of the mines (Oberbergmeister.) He went to Beyruth as director of the operations in those mines belonging to the Frankish provinces of Prussia. Yet he was always wandering in every direction, seeking for information and new subjects of study. He visited Vienna, and there heard of the discoveries of Galvani, with which he made himself familiar; went to Italy and Switzerland, where he became acquainted with the then celebrated Professors Jurine and Pictet, and with the illustrious Scarpa. He also went to Jena, formed an intimate acquaintance with Schiller and Goethe, and also Loder, with whom he studied anatomy. From that time he began to make investigations of his own, and these investigations were in a line which he has seldom approached since, being experiments in physiology. He turned his attention to the newly discovered power by which he tested the activity of organic substances; and it is plain, from his manner of treating the subject, that he leaned to the idea that the chemical process going on in the living body of animals furnished a clue to the phenomena of life, if it was not life itself. This may be inferred from the title of the book published in 1797—"Uber die gereizte Muskel und Nerven faser, mit Vermuthungen über den chemischen Process des Lebens, in Thieren und Pflanzen." In these explanations of the phenomena we have the sources of the first impulses in a direction which has been so beneficial in advancing the true explation of the secondary phenomena of life, but which, at the same time, in its exaggeration as it prevails now, has degenerated into the materialism of modern investigators. In that period of all-embracing activity, he began to study astronomy. His attention was called to it by Baron von Zach, who was a prominent astronomer, and at that time was actively engaged upon astronomical investigations in Germany. He showed Humboldt to what extent astronomy would be useful for him, in his travels, in determining the positions of places, the altitude of mountains, etc.

So prepared, Humboldt now broods over his plans of foreign travel. He has published his work on the muscular and nervous fibre, at the age of twenty-eight. He has lost his mother; and his mind is now inflamed with an ungovernable passion for the sight of foreign, and especially tropical lands. He goes to Paris to make preparation, by securing the best astronomical, metereological and surveying instruments. Evidently he does not care where he shall go, for on a proposition of Lord Bristol to visit Egypt, he agrees to

it. The war prevents the execution of this plan, and he enters into negotiations to accompany the projected expedition of Capt. Baudin to Australia; but when Bonaparte, bent on the conquest of Egypt, started with a scientific expedition, Humboldt wishes to join it. He expects to be one of the scientific party, and to reach Egypt by way of Barbary. But all these plans failing, he goes to Spain with the view of exploring that country, and finding perhaps some means of joining the French expedition in Egypt from Spain. While in Madrid he is so well received at the court—a young nobleman so well instructed has access everywhere—and he receives such encouragement from persons in high positions, that he turns his thoughts to an exploration of the Spanish provinces of America. He receives permission not only to visit them, but instructions are given to the officers of the colonies to receive him everywhere and give him all facilities, to permit him to transport his instruments, to make astronomical and other observations, and to collect whatever he chooses; and all that only in consequence of the good impression he has made when he appeared there, with no other recommendation than that of a friend who happened to be at that time Danish minister to the court of Madrid. With these facilities offered him, he sails in June, 1799, from Corunna, whence he reaches Teneriffe, makes short explorations of that island, ascending the peak, and sailing straightway to America, where he lands in Cumana, in the month of July, and employs the first year and a half in the exploration of the basin of the Orinoco and its connection with the Amazon. This was a journey of itself, and completed a work of scientific importance, establishing the fact that the two rivers were connected by an uninterrupted course of water. He established for the first time the fact that there was an extensive low plain, connected by water, which circled the high table land of Guiana. It was an important discovery in physical geography, because it changed the ideas about water courses and about the distribution of mountains and plains in a manner which has had the most extensive influence upon the progress of physical geography. It may well be said that after this exploration of the Orinico, physical geography begins to appear as a part of science. From Cumana he makes a short excursion to Havana, and hearing there of the probable arrival of Baudin on the west coast of America, starts with the intention of crossing at Panama. He arrives at Carthagena, but was prevented, by the advance of the season, from crossing the Isthmus, and changed his determination from want of precise information respecting Baudin's expedition. He determines to ascend the Magdalena River, and visit Santa Fè de Bogôta, where, for several months, he explores the construction of the mountains, and collects plants and animals; and, in connection with his friend Bonpland, who accompanied him from Paris, he makes those immense botanical collections, which were afterwards published by Bonpland himself, and by Kunth after Bonpland had determined on an expedition to South America. In the beginning of 1802, he reaches Quito, where, during four months, he turns his attention to every thing worth investigating, ascends

the Chimborazo to a height to which no human foot had reached any where; and, having completed this survey, and repeatedly crossed the Andes, he descends the southern slope of the continent to the shore of the Pacific at Truxillo, and following the arid coast of Peru, he visits finally Lima. I will pass lightly over all the details of his journey, for they are only incidents in that laborious exploration of the country which is best appreciated by a consideration of the works which were published in consequence of the immense accumulation of materials gathered during those explorations. From Lima, or rather from Callao, he sails in 1802 for Guayaquil and Acapulco, and reaches Mexico in 1803, where he makes as extensive explorations as he had made in Venezuela and the Andes, and after a stay of about a year, having put all his collections and manuscripts in order, revisits Cuba for a short time, comes to the United States, makes a hurried excursion to Philadelphia and Washington, where he is welcomed by Jefferson, and finally returns with his faithful companion Bonpland, to France, accompanied by a young Spanish nobleman, Don Carlo de Montufar, who had shared his travels since his visit to Quito.

At thirty-six years of age Humboldt is again in Europe with collections made in foreign lands, such as had never been brought together before. But here we meet with a singular circumstance. The German nobleman, the friend of the Prussian and Spanish courts, chooses Paris for his residence, and remains there twenty-two years to work out the result of his scientific labor; for, since his return, with the exception of short journeys to Italy, England and Germany, sometimes accompanying the King of Prussia, sometimes alone, or accompanied by scientific friends, he is entirely occupied in scientific labors and studies. So passess the time to the year 1827, and no doubt he was induced to make this choice of a residence by the extraordinary concourse of distinguished men in all branches of science, with whom he thought he could best discuss the results of his own observations. I shall presently have something to say about the works he completed during that most laborious period of his life I will only add now, that in 1827 he returned to Berlin permanently, having been urged of late by the King of Prussia again and again to return to his native land. And there he delivered a series of lectures preparatory to the publication of C smos; for in substance, even in form and arrangement, these lectures, of which the papers of the day gave short accounts, are a sort of prologue to the Cosmos, and a preparation for its publication.

In 1829, when he was sixty years of age, he undertakes another great journey. He accepts the invitation of the Emperor Nicholas to visit the Ural Mountains, with a view of examining the gold mines and localities where platina and diamonds had been found, to determine their geological relations. He accomplished the journey with Ehrenburg and Gustavus Rose, who published the result of their mineralogical and geological survey in a work of which is Rose the sole author; while Humboldt published under the title of Asiatic Fragments of Geology and Climatology, his observations of the

physical and geographical features made during that journey. But he had hardly returned to Berlin, when in consequence of the revolution of 1830, he was sent by the King of Prussia as Extraordinary Ambassador to France, to honor the elevation of Louis Philippe to the throne. Humboldt had long been a personal friend of the Orleans family, and he was selected as Ambassador on that occasion on account of these personal relations. From 1830 to 1848, he lived alternatively in Berlin and Paris, spending nearly half the time in Paris and half the time in Berlin, with occasional visits to England and Denmark; publishing the results of his investigations in Asia, making original investigations upon various things, and especially pressing the establishment of magnetic observatories, and connected observations all over the globe, for which he obtained the co-operation of the Russian Government and that of the Government of England; and at that time those observations in Australia and in the Russian Empire, to the borders of China, were established, which have led to such important results in our knowledge of terrestrial magnetism. Since 1848, he has lived uninterruptedly in Berlin, where he published, on the anniversary of his eightieth year, a new edition of those charming first flowers of his pen, his Views of Nature, the first edition of which was published in Germany in 1808. This third edition appeared with a series of new and remodeled annotations and explanations; and that book, in which he first presented his views of nature, in which he drew those vivid pictures of the physiognomy of plants and of their geographical distribution, is now revived and brought to the present state of science. The "Views of Nature" is a work which Humboldt has always cherished, and to which, in his Cosmos, he refers more frequently than to any other work. It is no doubt because there he had expressed his deepest thoughts, his most impressive views, and even foreshadowed those intimate convictions which he never expressed, but which he desired to record in such a manner that those that can read between the line might find them there; and certainly there we find them. His aspiration has been to present to the world a picture of the physical world, from which he would exclude everything that relates to the turmoil of human society, and to the ambitions of individual men.

A life so full, so rich, is worth considering in every respect, and it is really instructive to see with what devotion he pursues his work. As long as he is a student he is really a student, and learns faithfully, and learns everything he can reach. And he continues so for twenty three years. He is not one of those who is impatient to show that he has something in him, and with premature impatience utters his ideas, so that they become insuperable barriers to his independent progress in later life. Slowly and confident of his sure progress, he advances, and while he learns, he studies also, independently of those who teach him. He makes his experiments, and, to make them with more independence, he seeks for an official position. During five years, he is a business man, in a station which gives him leisure. He is superintendent of the mines, but a super-

intendent of the mines who can do much as he pleases; and while he is thus officially engaged journeying and superintending, he prepares himself for his independent researches. And yet it will be seen he is thirty years of age before he enters upon his American travels, those travels which will be said to have been the greatest undertaking ever carried to a successful issue, if judged by the results; they have as completely changed the basis of physical science as the revolution which took place in France, about the same time, has changed the social condition of that land. Having returned from these travels to Paris, there begins in his life a period concentrated, critical studies. He works up his materials then with an ardor and devotion which is untiring; and he is not anxious to appear to have done it all himself. Oltmanns is called to his aid to revise his astronomical observations, and his barometrical measurements, by which he has determined the geographical position of seven hundred different points, and the altitude of more than four hundred and fifty of them.

The large collection of plants which Bonpland had begun to illustrate, but of which his desire of seeing the tropics again has prevented the completion, he entrusts to Kunth. He has also brought home animals of different classes, and distributes them among the most eminent zoologists of the day. To Cuvier he entrusts the investigation of that remarkable batrachian, the acœolotel, the mode of development of which is still unknown, but which remains in its adult state in a condition similar to that of the tadpole of the frog during the earlier period of its life. Latreille describes the insects, and Valenciennes the shells and the fishes; but yet to show that he might have done the work himself, he publishes a memoir on the anatomical structure of the organs of breathing in the animals he has preserved, and another upon the tropical monkeys of America, and another upon the electric properties of the electric eel. But he was chiefly occupied with investigations in physical geography and climatology. The first work upon that subject is a dissertation on the geographical distribution of plants, published in 1817. Many botanists and travelers had observed that in different parts of the world there are plants not found in others, and that there is a certain arrangement in that distribution; but Humbolt was the first to see that this distribution is connected with the temperature of the air as well as with the altitudes of the surface on which they grow, and he systematized his researches into a general exposition of the laws by which the distribution of plants is regulated. Connected with this subject, he made those extensive investigations into the mean temperature of a large number of places on the surface of the globe, which led to the drawing of those isothermal lines so important in their influence in shaping physical geography, and giving accuracy to the mode of representing natural phenomena. Before Humboldt, we had no graphic representation of complex natural phenomena which made them easily comprehensible even to the minds of moderate cultivation. He has done that in a way which has circulated information more extensively, and brought it to the

apprehension more clearly than it could have been done by any other means.

It is not too much to say, that this mode of representing natural phenomena has made it possible to introduce in our most elementary works, the broad generalizations derived from the investigations of Humboldt in South America; and that every child in our schools has his mind fed from the labors of Humboldt's brain, wherever geography is no longer taught in the old routine. Having completed his American labors, Humboldt published three works partly connected with his investigations in America, and partly with his further studies in Europe since his return, and among others, a book, which first appeared as a paper in the "Dictionnaire des Sciences Naturelles," but of which separate copies were printed under the title of "Essai sur la Constitution des Roches dans les deux Hemisphères." This work has been noticed to the extent which it deserved by only one geologist, Elie de Beaumont. No other seems to have seen what there is in that paper, for there Humboldt shows, for the first time, that while inorganic nature is the same all the world over,—granite is granite, and basalt is basalt, and limestone and sandstone, limestone and sandstone wherever found,—there is everywhere a difference in the organized world, so that the distribution of animals and plants represents the most diversified aspects in different countries. This at once explains to us why physical sciences may make such rapid progress in new countries, while botany and zoology have to go through a long process of preparation before they can become popular in regions but recently brought under the beneficial influence of civilization. For, while we need no books of our own upon astronomy, chemistry, physics and mineralogy, we have to grope in the dark while studying our plants and animals, until the most common ones become as familiar to us as the common animals of the fields in the old countries. The distinction which exists in the material basis of scientific culture in different parts of the world, is first made evident by this work. By two happily chosen words, Humboldt has presented at once the results of our knowledge in geology at the time, in a most remarkable manner. He speaks there of "independent formations." Who, before Humboldt, thought there were successive periods in the history of our globe, which were independent one from the other? There was in the mind of geologists only a former and a present world. Those words expressing the thought, and expressing it in reference to the thing itself, for the first time occur in that memoir; thus putting an end to those views prevailing in geology, according to which the age of all the rocks upon the earth can be determined by the mineralogical character of the rocks appearing at the surface. The different geological levels at which rocks belonging to the same period have been deposited, but which have been disturbed by subsequent revolutions, he happily designated as "geological horizons."

It was about the time he was tracing these investigations that he made his attempt to determine the mean altitude of the continents above the sea. Thus far geographers and geologists had considered

only the heights of moutain chains, and the elevation of the lower lands, while it was Humboldt who first made the distinction between mountain chains and table lands. But the idea of estimating the average elevation of continents above the sea had not yet been entertained; and it was again Humboldt, who, from the data that he could command, determined it to be at the utmost 900 feet, assuming all irregularities to be brought to a uniform level. His Asiatic travels gave him additional data to consider these depressions and swellings of continents, when discussing the phenomena of the depressions of the Caspian Sea, which he does in a most complete manner.

There is a fullness and richness of expression and substantial power in his writing, which is most remarkable, but which renders his style somewhat involved. He has aimed to present to others what nature presented to him—combinations interlocked in such a complicated way as hardly to be distinguishable—and his writings present something of the kind. You see his works, page after page, running into volumes without division into chapters or heads of any sort; and so conspicuous is that peculiarity of style in his composition, that I well remember hearing Arago, turning to him, while speaking of composition, and saying, "Humboldt, you don't know how to write a book—you write without end, but that is not a book; it is a picture without frame." Such an expression of one scientific man to another, without giving offence, could only come from a man so intimately associated as Arago was with Humboldt. And this leads me to a few additional remarks upon his character and social relations. Humboldt was born near the Court. He was brought up in connection with courtiers and men in high positions of life. He was no doubt imbued with the prejudices of his caste. He was a nobleman of high descent. And yet the friend of Kings was a bosom friend of Arago, and he was the man who could, after his return from America, refuse the highest position at the court of Berlin, that of the Secretaryship of Public Instruction, preferring to live in a modest way in Paris, in the society of all those illustrious men who then made Paris the centre of intellectual culture. It was there where he became one of that Societè d'Arcueil, composed of all the great men of the day, to which the paper on "Isothermal Lines" was presented, and by which it was printed, as all papers presented to it were, for private distribution. But from his intimate relations, especially to the court of Prussia, some insinuations have been made as to the character of Humboldt. They are as unjust as they are severe in expression. He was never a flatterer of those in power. He has shown it by taking a prominent position, in 1848, at the head of those who accompanied the victims of the revolution of that year to their last place of rest. But while he expressed his independence in such a manner, he had the kindest feelings for all parties. He could not offend, even by an expression, those with whom he has been associated in early life; and I have no doubt that it is to that kindliness of feeling we must ascribe his somewhat indiscriminate patronage of aspirants in science, as well as men who

were truly devoted to its highest aims. He may be said to have been, especially in his latter years, the friend of every cultivated man, wishing to lose no opportunity to do all the good of which he was capable; for he had a degree of benevolence and generosity which was unbounded. I can well say that there is not a man engaged in scientific investigation in Europe, who has not received at his hands marked tokens of his favor, and who is not under deep obligations to him. May I be permitted to tell a circumstance which is personal to me in that respect, and which shows what he was capable of doing while he was forbidding an opportunity of telling it. I was only twenty-four years of age when in Paris, whither I had gone with means given to me by a friend; but was at last about to resign my studies from want of ability to meet my expenses. Professor Mitscherlich was then on a visit in Paris, and I had seen him in the morning, when he had asked me what was the cause of my depressed feelings. I told him that I had to go, for I had nothing left. The next morning, as I was seated at breakfast in front of the yard of the hotel where I lived, I saw the servant of Humboldt approach. He handed me a note, saying there was no answer, and disappeared. I opened the note, and I see it now before me as distinctly as if I held the paper in my hand. It said:

"My friend, I hear that you intend leaving Paris in consequence of some embarrassment. That shall not be. I wish you to remain here as long as the object for which you came is not accomplished. I enclose you a check for £50. It is a loan, which you may repay when you can."

Some years afterwards, when I could have repaid him, I wrote, asking for the privilege of remaining forever in his debt, knowing that this request would be more consonant to his feelings than the recovery of the money, and I am now in his debt. What he has done for me, I know he has done for many others, in silence and unknown to the world. I wish I could go on to state something more of his character, his conversational powers, etc., but I feel that I am not in a condition to speak of them. I would only say that his habits were very peculiar. He was an early riser, and yet he was seen at late hours in the saloons in different parts of Paris. From the year 1830 to 1848, while in Paris, he had been charged by the King of Prussia to send reports upon the condition of things there. He had before prepared for the King of Prussia a report on the political condition of the Spanish Colonies in America, which no doubt had its influence afterwards upon the recognition of the independence of those Colonies. The importance of such reports to the Government of Prussia may be inferred from a perusal of his political and statistical essays upon Mexico and Cuba. It is a circumstance worth noticing, that above all great powers, Prussia has more distinguished scientific and literary men among her diplomatists than any other state. And so was Humboldt actually a diplomatist in Paris, though he was placed in that position, not from choice, but in consequence of the benevolence of the King, who wanted to give

him an opportunity of being in Paris as often and as long as he chose.

But from that time there were two men in him—the diplomatist, living in the Hotel des Princes, and the naturalist, who roomed in the Rue de la Harpe, in a modest apartment in the second story, where his scientific friends had access to him every day before seven. After that he was frequently seen working in the library of the Institute until the time when the Grand Seigneur made his appearance at the Court or in the saloons of Paris.

The influence he has exerted upon the progress of science is incalculable. I need only allude to the fact that the Cosmos, bringing every branch of natural science down to the comprehension of every class of students, has been translated into the language of every civilized nation of the world, and gone through several editions. With him ends a great period in the history of science—a period to which Cuvier, Laplace, Arago, Gay-Lussac, Decandolle and Robert Brown belonged, and of whom only one is still living—the venerable Biot.

Fees for Professional Services.

The remuneration for medical, surgical, and obstetrical services have, of necessity, varied very much in different ages and countries, according to the estimate of the services rendered, or the relative value of money. In many countries, towns, and cities there are regular fee-bills, regulating the charges for ordinary practice; a custom which we have always regarded as absurd and unjust, since it places, in this particular, all practitioners, whatever may be their respective merits, upon the same level, whereas every man should be permitted to charge according to his skill and the nature of his services, not forgetting the circumstances of his patients.

In looking, not long ago, over some of our papers, our eye chanced to light upon a bill for professional services rendered by the late Dr. James Craik to Captain G. S., of Washington City, the father of a large and highly respectable family, to one of the members of which we are indebted for this interesting document. Dr. Craik was the physician of Washington, and attended him in his last illness, in conjunction with Dr. Dick. The bill is dated 1795, beginning in April of that year, and ending in March, 1799, the entire amount being £66 16s. 6d. It covers more than ten pages of foolscap, and particularizes every item with the same care as a merchant's or grocer's account. The following extract will serve as a specimen of Dr. Craik's charges:—

	£	s.	d.
For extracting Peter's tooth.....	0	3	0
Visit to your lady, and anodyne draught.....	0	3	0
Vial of diaphoretic drops for your son George.....	0	3	0
A purge.....	0	1	3

	£	s.	d.
An emetic	0	1	6
For bleeding Capt. S	0	3	0
" delivering your lady	5	0	0
Visit to your son George, and vermifuge pill	0	1	3
32 syphilitic pills for Sam	0	16	0
Visit to your child Harriet, and 2 alterative powders	0	2	0
Visit to your son George, and vermifuge pill	0	1	3
8 ounces of injection for boy Sam	0	5	0
One syringe	0	3	0
Dressing negro boy's hands	0	2	6
Visit to your lady, and anti-rheumatic tincture	0	3	0
Visit to your lady, and opening abscess in breast	0	5	0
Blistering plaster	0	5	0
Bleeding	0	3	0
12 febrifuge powders	0	6	0
6 ounces best olive oil	0	2	6
Bleeding negro woman	0	3	0
" Master George	0	3	0
Dose of salts	0	1	6
Inoculating your child	1	0	0

Emetics, purgatives, absorbent powders, anodyne draughts, and preparations of bark—powder and infusion—are prominent items of the account.

The custom of presenting items in medical bills has, we presume, become obsolete. It is certainly inconsistent with the dignity of a professional man of the present day to descend to such minutiæ. A round statement in dollars should be quite sufficient. Only once, in our whole life, have we been requested so to demean ourselves. We replied, that it was contrary to the habits of professional gentleman to specify their charges, with the minute exactness of an auctioneer's catalogue, at the same time that we informed our *patron* our ledger was at his service; nay, furthermore, that if in future he wanted our attendance on such conditions, he could not have it. The *creature*, now one of the merchant princes of the city where we then resided, had all his life been dealing in sugar, molasses, and whisky, and could therefore not help following the force of his habits.

Professional services are generally much more highly appreciated in cities and large towns than in the country. In the United States, practitioners are much better rewarded in the South and Southwest than in the North and East; in the slave States universally much more liberally than in the free. The reasons for these practices are obvious. In towns and cities physicians could not live if their charges were not higher than they are in the country; and in the Southern regions of the United States money is much more plenty than among the same number of inhabitants in the North and East.

The highest fees for medical services in this country are paid at New Orleans, where the ordinary charge for a visit is from two to five dollars, while consultation services yield at the rate of from ten

to twenty. At Charleston the first consultation fee, established by long habit, is $14.00, the subsequent ones being each $2.00. In this city the first consultation visit is usually $5.00, and those made afterwards $2.00 each. The fees of surgeons are generally, everywhere, higher than those of physicians.

Since our attention has been directed to this subject, we have examined a number of works in our library with a view of ascertaining the charges, ordinary and extraordinary, of practitioners, dead and living, in different countries and in different ages.

In ancient times some remarkable fees were obtained for professional services. It is related of Charmis, who kept a bathing establishment at Rome, in the reign of the Emperor Claudius, that his regular charge for advice to those who were anxious to avail themselves of his treatment was £800. He was the first water-cure doctor, if we may credit the researches of Dr. Doran, that ever practiced, and he made an immense fortune, such as no brother of the craft of the present day can at all approach.

The most liberal fee of modern times was that received by Dr. Dinsdale, a physician of Hertford, England, for inoculating the Empress Catharine, at whose request he visited Russia, in 1768. The operation was perfectly successful, and such was the gratification of the Empress that she made Dinsdale a baron of the empire, besides presenting him £12,000, and a pension of £500 a year.

The largest fee ever received by Sir Astley Cooper was 1,000 guineas. His patient was a man of the name of Hyatt, a retired West India merchant, who was affected with stone in the bladder. The manner in which the fee was presented is worthy of notice. When Hyatt had entirely recovered from the effects of the operation, he requested his surgeon, with his two medical attendants, Dr. Lettsom and Dr. Nelson, to visit him on a particular day. Cooper arrived after the physicians had left the room; he met them down stairs, discussing the liberality of their patient, who had presented each with £300. Sir Astley was cordially received by the old West Indian, and after having chatted a little while, he rose to take his leave, and had got as far as the door, when Hyatt threw his night-cap at him, saying, at the same time, "There, young man, put that into your pocket." Upon examining it, he found a check in it for 1,000 guineas.

Hyatt, it would seem, was equally liberal to his apothecary, or regular family attendant. One day, being sent for in haste to visit his patient, he fell down and hurt his knee, so as to cause him, on entering, to be lame. Hyatt, observing his condition, immediately exclaimed, "Dobson, old fellow, what is the matter?" On learning what the trouble was, he pulled out a £100 bank note, and applied it to the joint, adding that it was the best plaster in the world for a bruised knee.

A wealthy London merchant, Mr. William Cole, paid Sir Astley Cooper annually, for years, £600, for attendance upon his family.

During the hey-day of his professional life Sir Astley Cooper frequently made 100,000 dollars a year by his practice. Much of this

vast sum was received for chamber practice. He had to answer many letters of advice, for which he never received less than a one pound note, while many yielded him five times that amount.

Dr. Lettsom, who was a West Indian by birth, made, in a visit which he paid to Tortala, his native town, soon after having completed his studies in London, nearly £2,000 in five months. After he had succeeded in establishing himself in the British metropolis, his income annually ranged from 20,000 to 25,000 dollars. In 1800, he received, in fees, £12,000, or sixty thousand dollars.

Fothergill, the Quaker doctor, did an immense practice. For the last twenty-five years of his life, his fees annually averaged nearly £7,000, or about 35,000 dollars. He commenced his practice in 1740.

Mead's income was, on an average, from £5,000 to £7,000, for many years. He once received 300 guineas for visiting a patient at Ingestree, in Staffordshire. The patient had been very ill, but recovered before the arrival of his great physician.

Dupuytren's income was enormous; he began life as a poor boy, and died worth more than a million of dollars. Graefe, the celebrated surgeon of Berlin, left an immense fortune, the result of his professional labors.

In this country, physicians are not noted for their high charges or great income. One of the largest fees ever received by any one was that of Dr. Ephraim McDowell for the operation of ovariotomy, performed upon a lady in Tennessee, whose husband gave him $1,500. We have heard of a fee of $5,000 being paid to a New York surgeon for an operation for club-foot, but we are unable to vouch for the authenticity of the story. Physick left a large fortune, but rather in consequence of the rise of his estate than of his large professional emoluments. His charges were generally small. A gentleman once handed him a hundred dollar note for attendance on his wife; but the doctor thinking that it was out of all proportion to the value of his services, returned all but ten dollars

The salaries of court physicians and surgeons have also varied according to the times in which they flourished, and the respective ranks which they occupied. In the reign of Henry III. of France, the pay of the royal household staff was as follows:

First Surgeon.

Ambrose Pare..... 666 livres and 12 sols.

Surgeons-in- Ordinary.

Pierre Pegray..... 333 livres and 6 sols.
Antoine Portail..... 333 " and 6 "

Assistant Surgeons, serving each three months in the year.

January, February, and March.

Jacques Guillemeau..... 100 livres.
Isaac Bruns..... 100 livres.

April, May, and June.

Jehau Lambert ..... 100 livres.
Jacques D'Amboise ..... 100 livres.

July, August, and September.

Ismael Lambert ..... 100 livres.
Hierome De la Noue ..... 100 livres.

October, November, and December.

Charles Buchalier ..... 100 livres.
Michael Vandelon ..... 100 livres.

Louis XIV. seems to have had a high appreciation of the services of his professional attendants. Being affected with anal fistule, an operation became necessary, on recovering from which he exhibited his gratitude by bestowing upon them not less than £14,700, in the following ratio:—

To M. Felix	50,000 crowns	=	£6000.
Dr. Duquin	100,000 livres	=	4000.
Dr. Fagon	24,000 "	=	1000.
M. Bessiere	40,000 "	=	1500.
Four apothecaries, each	3,000 "	=	2000.
M. Raye, apprentice to M. Felix...	400 pistoles	=	200.

Considering the enormous price paid for the operation, it is surprising that the filthy disease which it was designed to relieve should ever have become the fashionable court complaint. A surgeon at the present day may regard himself as extremely fortunate if he can occasionally get a patient who is able to pay him two hundred dollars for the division of the sphincter muscles, including the after-treatment.

Scanzoni, professor of midwifery in the University of Wurzburg, received $25,000 for attending, a short time ago, the Empress of Russia in her confinement. The prestige with which the favorable reception of this physician at the Russian court invested him, has rendered him the most celebrated accoucheur of continental Europe, and laid the foundation of one of the most aristocratic practices in the world, crowds of the German and foreign nobility flocking to him from all parts.

Medical men sometimes receive, in addition to their regular fees, large presents, either in money, plate, clothing or wine. Thus Ambrose Pare, the father of French surgery, at the siege of Metz, in 1552, had a tun of wine sent to him for curing one of the officers of a broken limb, by De La Roch, with a promise that "when it was dronken he would send mee another." The Sultan recently, after his recovery from an attack of ague, in which he was obliged to take an unusual quantity of quinine, the effects of which occasioned symptoms which somewhat alarmed the court, presented his physician, Dr. Caratheodory, precious stones, works of art, and various other articles, valued at between £12,000 and £16,000, besides a handsome estate.

Physicians, on retiring from practice, are sometimes presented with a service of plate by their grateful patrons; and similar compliments are occasionally paid by towns, and cities, in consideration of the services rendered by practitioners during the prevalence of devastating epidemics.

Sometimes, again, the present is in the form of a wife. Thus, Podilirius, whose praises have been sung by Homer, was rewarded by the King of Caria with the hand of his daughter, whose life he was supposed to have saved by bleeding her in both arms, after a fall from the top of a house. Such a gift might not always be agreeable or convenient to the recipient, but it could hardly be otherwise when it comes in the form of a rich princess, as in the case of Podilirius.

Governments do not always reward their subjects in proportion to the value of their services. Jenner, for his immortal labors in vaccination, by which millions of lives have been preserved, received from the British Parliament the paltry sum of £20,000. Brossard, a French surgeon, in the seventeenth century, was richly rewarded by the French government for the disclosure that agaric would arrest hemorrhage after surgical operations. The remedy was tried, and, of course, found useless, though not until a number of lives had been lost by it. Mrs. Stephens, as late as the last century, obtained a large sum from the British Parliament for making known the supposed virtues of Castile soap and eggshells in dissolving urinary calculi.

The charges for attendance at coroner's inquests are not commensurate with the services exacted upon these occasions. From ten to twenty dollars is the usual fee for making a dissection for the benefit of the public, and even that sum is often grudgingly allowed. In cases of poisoning the remuneration is, of course, more liberal, though seldom adequate. The largest compensation for services of this description ever paid in this, or, perhaps, in any other country, was that recently awarded by the City of New York to Dr. Doremus, Professor of Chemistry in the New York Medical College. The sum allowed to him was $3,000, besides $800 for the outlay of new apparatus. The case was that of Stephens, tried for the murder of his wife by poison. Dr. Doremus was obliged to analyze two entire bodies.

Finally, a good fee is a powerful stimulant, causing the most delightful sensations, and goading a man on to the most vigorous performance of his duties. It increases the pace of the sluggard, and improves the digestion of the dyspeptic. There is not a man in the profession that has not, at times, felt the force of the practice of the celebrated physician of Bath. Finding himself no better for his own prescriptions, he laughingly observed to a friend, "Come, I think I will give myself a fee; I am sure I shall do better then." Putting his hand into his pocket, he took out a guinea, and gravely passing it to the other, he soon got well. Assuredly, reader, there is great potency in a good fee.

Physicians sometimes place no better estimate upon their services than their patients. A young professional acquaintance recently told us that, not long ago, after having prescribed for a female, she handed him a one dollar counterfeit note, which he did not hesitate to take although he knew at the time it was worthless, believing that it was a fair equivalent for his services. We have not examined our brother's organ of conscientiousness, but suppose it to be very large.—*North Amer. Medico-Chirurgical Review.*

Increase of Muscle during Growth. By J. Budge.—It has long been a matter of some interest to ascertain whether, during growth, and the hypertrophy caused by exercise, the muscular fibres of animal life increase in number or merely in size M. Budge, in an interesting communication to the French Academy, states that the actual number of the fibres increases with every year during the period of growth, so that the increase of muscular tissue does not depend alone upon enlargement of the individual fibres of the muscles. M. Budge has also ascertained that starvation diminishes the number of the fibres, and notably lessens their size.—(*Journal de Physiologie;* from *Comptes Rendus de l' Academie*, October, 1858.)

On Calculous Diseases in Hungary. By *Professor Balassa.*—This article is the substance of a reply made by Professor Balassa, of Pesth, to a circular asking for statistical information, issued by Professor Gross, of Philadelphia, U. S. Owing to the absence of rural hospitals in Hungary, Professor Balassa observes, almost all the cases of stone which occur in Hungary are brought to Pesth for treatment; and in his clinic at the hospital, he has treated, in the twelve years, 1843–55, 135 cases. The ages of these patients were as follows:

From	1	to	7	years	-	-	-	-	-			21
"	8	"	15	"	-	-	-	-	-	-		32
"	16	"	25	"	-	-	-	-	-	-		47
"	26	"	50	"	-	-	-	-	-	-	-	27
"	51	"	60	"	-	-	-	-	-	-		6
"	61	"	70	"	-	-	-	-	-	-	-	2
												135

The employments and conditions of these patients were as follows: Peasants, 82; artisans, 39; tradespeople, 7; *employees*, 2; land-owners, 2; students, 2; teacher, 1.

Thus calculous affections are met with in the Pesth clinic with by far the greatest frequency in the young, inasmuch as out of a total of 135 cases, 100 of the patients had not reached their twenty-sixth year; and when it is added that in most of the cases the disease

has long existed, its origin must be referred to a still earlier age. Moreover, during the twelve years, there were also forty-nine children treated for stone, in the Pesth Children's Hospital. So, too, the immense proportionate prevalence of the disease in the peasant (60·74 per cent.) and in the artisan (28·889 per cent) classes is to be remarked. These classes, indeed, almost exclusively furnish the examples of the disease occurring among the young, as the author's private practice has taught him. Dr. Ivanchich, too, in his statistics of 100 cases of stone, comprises 33 natives of Hungary, but only two of these are as young as eighteen. The conclusion is, then, that stone prevails especially among the young of the poorer classes; and this leads us to consider some of the influences that are at work in its production. The nature of the diet and mode of life can alone explain these differences. It is the custom in Hungary to feed children when weaned, or even while suckling, upon the same articles of diet as are employed by adults, and while these in the wealthy classes may be nutritious and digestible, among the poor they consist of unwholesome matters, as fruits, vegetables, pork and bacon. The latter, then, are fed with a diet that is difficult of digestion, and containing by far too large a proportion of the carbonaceous element; and the importance of this statement will be seen when the chemical constitution of the calculi has been considered.

For various reasons, the author has only been able to preserve 83 calculi in his cabinet, but all these have been carefully examined, and he furnishes the details of the results: 63 of the calculi were of homogeneous composition, and in 20 the nuclei and external portions were of different composition The general result is, that while uric acid was the most frequent constituent, it was not the most frequent chief constituent, for while it was found more or less in 72 calculi, it constituted the chief portion of these only in 23. The oxalate of lime was the chief constituent; for it formed the chief mass of 20 calculi of homogeneous composition, and formed the nuclei in 12 out of the 20 stones of non-homogeneous composition. It is evident, then, that the formation of stone in Hungary is much due to the richness of the urine in oxalates, *i. e.* in the carbonaceous combinations furnished by the defective aliment employed. Of the 20 stones having nuclei of different composition to the surrounding parts, in 12 these consisted of oxalates, and in 8 of urates. It is owing to the prevalence of these in the urine that the first impulse to the formation of calculi is given, while their enlargement much depends upon the presence of phosphates. These were present either as a chief or partial constituent in 45 calculi. These considerations lead to the conclusion that the most effectual means of preventing the formation or recurrence of calculi would be to act upon the oxalic or uric acid formations of the urine.

Of the 135 cases, 13, on account of disease of the urinary organs or the condition of the entire economy, were deemed unsuitable for operation. Some of the 122 operations were performed under very unfavorable circumtances, in consequence of chronic diseases of the urinary organs.

Of the 122 cases operated upon, 92 were submitted to lithotomy, and 30 to lithotrity. Of the former, 11 patients, (11·95 per cent.,) and of the latter, 5 (11·66 per cent.,) died. Among the 11 fatal lithotomy cases, there were 5 individuals who suffered from severe chronic disease of the kidney, and one who died of typhus during an epidemic. There were, therefore, only 5 cases in which death took place in from the second to the fifth day, from inflammation of the bladder or peritoneum, consequent upon the operation. This reduces the strict mortality from the operation to 5·43 per cent. Among the 5 fatal lithotrity cases, in 1 death was due to phthisis, in 2 to old suppurative nephritis, and in 1 to recent nephritis, this last and one other death being alone directly referable to the operation, *i. e.*, 6·66 per cent. Rectal fistula, and urinary infiltration were never met with in any of the lithotomy cases. The difficulty in extracting the stone was considerable in many cases on account of its size, and in several of these inflammation of the bladder and peritoneum was set up, this proving fatal in 5 instances. Irritation and inflammation of the bladder frequently also, followed lithotrity, leading to considerable delay in the repetition of the operation.

With the exception of 7 cases, the stone was always removed entire. The largest calculus measured two inches five lines in diameter, in 5 calculi the diameter was above two inches, and in 24, between one and one and a half inch. The heaviest, removed from a boy ten years old, weighed one ounce and a half and ten grains, and the lightest seventeen grains. In 8 patients there were two stones, and in 1 three. In 2 children union by the first intention took place, and they left between the eighth and tenth day. The other patients were discharged between the twenty-first and sixtieth days. Relapse occurred in 2 instances after lithotrity, and in 1 after lithotomy.

Of the whole 135 cases, only 1 occurred in a female, upon whom lithotrity was performed.

As to the mode of performing lithotomy, Professor Balassa makes an aperature in the bladder with a convex scalpel sufficiently large to admit the index finger of the left hand, and then enlarges it by means of a straight probe-pointed bistoury or Heister's knife. He lays great stress upon the wound being made sufficiently large, and in cases of voluminous calculi, frequently makes a bilateral incision. After bleeding has been arrested by the injection of iced water, (performed while the fingers maintain the wound of the bladder open,) some small strips of oiled linen are carried along the index finger to the wound in the bladder, (especially when extraction has been difficult,) in order to prevent the urine penetrating the swolen edges of the track of the incision. They are removed after two or three days, and the author attributes the non-occurrence of infiltration principally to their employment.—*Wien Medizin. Wochenschr.*, 1858, Nos. 25 and 26.—*British and Foreign Medico-Chirurgical Review*, July, 1859.

XUM

PART THIRD.

BIBLIOGRAPHICAL NOTICES AND REVIEWS.

The Diagnosis Pathology and Treatment of Diseases of the Chest. By W. W. GERHARD, M. D., one of the Physicians to the Pennsylvania Hospital—Fellow of the College of Physicians of Philadelphia, member of the American Philosophical Society, etc., etc. Fourth Edition, revised and enlarged. Philadelphia: J. B. Lipincott & Co., 1860.

This work, which has been before the profession for some time, the first edition having made its appearance in 1846, is very well adapted to the wants of the practitioner. The work on *Mediate Auscultation*, by Laennec, gave precision to the history of thoracic diseases. Andral called attention perhaps first to *Bronchial* respiration, and pointed out its value. Louis' merit in his work on Phthisis, is, that he developed more completely the Pathological Anatomy and Symptoms. Of late we have the treatises of Barth and Roger, Walsh, and Flint, the last of which is a work of more than common value. Dr. Gerhard aims at an exposition of every thing pertaining to diseases of the Chest. Here we have the Pathological Anatomy, Physical Signs, Symptoms, Diagnosis, Prognosis and Treatment, all in a single volume of four hundred and forty-eight pages. This then we look upon as a very good text-book for the Student, while the practitioner will find, on examination of the chapters that ought to show the progress of late years, that the Author in the edition before us is fully up to the times.

It is but a few years since *Consumption* was regarded as an *opprobrium medicorum*. The different varieties of the disease are now better understood, together with the relative amenability of its different forms to treatment. Since observation has proven that *cavities* in the lungs, once in a while, are healed up, thus becoming in most cases obliterated, the case has to be a very bad one that presents no ground at all for hope.

So far as pathology is concerned, without going into details, it may be safely asserted, that it consists in a degraded state of all the

more important functions of the organism ; a state of the movements that are very much below par. In a case of phthisis it is not uncommon to have intercurrent inflammation and other evidences of local sthenia, still the ruling tendency is downwards, and the actions those of disintegration.

Such facts have led to an almost total change of treatment. Digitalis, mercury, tartar emetic, lobelia inflata, etc., have been mostly laid aside, and general blood-letting entirely so. It is true that authors continue to recommend in intercurrent pneumonia and pleuritis, local blood-letting, blistering, and the general use of some of the articles above noticed, and this is true of the work before us. Sagacious practitioners, however, and those who know the most of such treatment, are in favor of abandoning it, for the stimulating, strengthening plan—the use of alcoholic drinks, and a rich nourishing diet. We have, comparatively speaking, just entered upon this experiment, and we have no doubt of its having been made too general, and raised expectations that can never be realized. It is, nevertheless, not inconsistent with pathology ; and so far as its success is concerned, there is much valuable testimony.

In giving the treatment for *Pulmonary Hemorrhage*, when connected tubercles, the Author says : "The patient should scarcely ever be bled from the arm, unless there is extreme excitement of the pulse with a full and developed force."

Is this excitement of the pulse, etc., good ground for venesection ? We think not. Better use sedative drugs, such as veratrum, tartar emetic. We have long hoped to see this suggestion of blood-letting abolished. It is unwise.

The Action of Medicines on the System. "Or on the Mode in which Therapeutic Agents, introduced into the Stomach, produce their peculiar effects on the Animal Economy." By FRED. WM. HEADLAND, M.D., B.A., F.L.S. Third edition, revised and enlarged. Philadelphia : Lindsay & Blakiston, 1859.

What little is known of the *Action* of medicines is pretty well set forth in this work. It met, on its first appearance, with special favor, because of the clear and comprehensive terms in which the

doctrines are couched. In the edition before us, some matters are noticed which were not included in former ones, and certain topics are more fully discussed than before.

The general modes of action of therapeutic agents introduced into the stomach are treated of in *Ten* Propositions. Then we have a chapter on the Action of some of the more important medicines in particular. As the work is pretty generally in the hands of the profession, our intention at present is simply to announce the appearance of the *third* edition.

The Obstetric Catechism. Containing Two Thousand Three Hundred and Forty-seven Questions and Answers on Obstetrics Proper. By Jos. WARRINGTON, M.D. One Hundred and Fifty Illustrations. Philadelphia: J. B. Lippincott & Co., 1860.

This work is designed as a sort of *vade mecum* or "*test*" book for the student. As far as we have examined it, the questions appear pertinent, and the answers generally correct. The Author deserves the thanks of the obstetrical student for thus bringing within a small compass the whole skeleton of obstetrical science.

An Introduction to Practical Pharmacy, designed as a Text-Book for the Student; and as a Guide for the Physician and Pharmaceutist, with many Formulas and Prescriptions. By EDWARD PARRISH, Graduate in Pharmacy, Member of the Philadelphia College of Pharmacy and of the American Pharmaceutical Association, etc., etc. Second Edition greatly enlarged and improved; with two hundred and forty-six Illustrations. Philadelphia: Blanchard & Lea, 1859.

The success of the *first* edition of this work has been such as to stimulate the Author to make it worthy of still more general acceptance. The numerous chemical, therapeutical, and physiological discoveries have not only added to the resources of the physician, but increased very much the domain of pharmacy.

The *syllabi*, in the present edition, enhance very much its value. By this form the author has been enabled to arrange an immense number of facts in a small space, and displaying them effectually in their relation to each other.

This work, we are told, is not the labor of the secluded student; but has been composed by a practical pharmaceutist.

No one who has observed any thing pertaining to practical medicine of late years, has overlooked the general tendency to an abridgement of the quantity of drugs used. We have, indeed, had presented for grave consideration, by those in high places, views and doctrines in regard to the treatment of diseases, that made drugs almost entirely unnecessary. The "*little pill*" epidemic affected great numbers. It should not, therefore, be regarded as strange that one here and there, who it had been supposed were "*bullet proof*" against humbugs, should be found to succumb to prevailing influences. It is strange, however, that their delusion should have been so complete that they even immagined themselves competent to write books of instruction for others. "*Nature and Art in the Cure of Disease*"—and "*Rational Medicine,*" the former by a foreigner—the latter by an American, are both *abortions*—a little truth mixed up with most egregious errors and false doctrines. The simple fact that substances contain medical properties—properties that will cure disease—is a refutation of every thing that *Forbes* and *Bigelow* have said. With such a fact to start with, the mere scientist would say that no human mind could compute the benefits that may be derived from drugs.

The book before us is an embodiment of the truths which mostly relate to the preparation of substances containing medical properties. But we feel, after looking through it, that we could safely recommend its perusal as a prescription to those who have not yet been sanctified in sound faith.

Lectures on Surgical Pathology, delivered at the Royal College of Surgeons of England, by JAMES PAGET, F.R.S., &c. Second American edition. *Hypertrophy: Atrophy: Repair: Inflammation: Mortification: Specific diseases; and Tumors.* Philadelphia: Lindsay & Blakiston, 1860.

This is not, properly speaking, a text book: it is not devoted to the general subject of Surgical Pathology: it is confined to the scope indicated on the title page, as above given.

We are saved the necessity of an extended notice from having given our readers an imperfect review of it, on the appearance of the

first edition. The present edition corresponds perfectly with the first, the work having undergone no alteration.

Few, if any books, issued from the surgical press in modern times, have exerted more influence than this, considering its moderate scope. The author commences his treatise with the consideration of the subject of Nutrition—its Nature, Purpose, and Conditions; summing up the leading conditions necessary to normal nutrition as consisting chiefly of four:

"1. A right state and composition of the blood or other nutritive material.

2. A regular and not far distant supply of blood.

3. (At least in most cases) a certain influence of the nervous system.

4. A natural state of the part to be maintained."

From this subject he makes an easy and natural transition to the consideration of the Formative process, Growth, and Hypertrophy, making the conditions, giving rise to the latter, to consist mainly of three:

"1. The increased exercise of a part in its healthy functions.

2. An increased accumulation, in the blood, of the particular materials which the part appropriates to its nutrition, or in secretion.

3. An increased afflux of healthy blood."

The physiology of Hypertrophy, as occurring in various tissues, is then illustrated, by the description of specimens, or by wood cuts representing them. He recognizes two kinds of hypertrophy; one consisting in mere growth; the other in increase by development. From this topic the author proceeds to the consideration of a converse condition, that indicated by the term Atrophy. Of this, again, he recognizes two kinds; one in which the part is simply reduced in size; the other that in which the diminution in size is attended with dégeneration; specifying, among others, fatty, calcareous, and pigmental degeneration. Atrophy and degeneration, as affecting particular tissues, muscle, bone, blood vessels, nerves, the heart, &c., are described.

A chapter is then devoted to "General considerations on the repair and reproduction of injured or lost parts." The same ascent from simple facts to those which are more complex, characterizes this chapter also. The ability to repair injuries is not an exclusive property of living beings; for even chrystals which have been inju-

red are capable of it, when placed in the conditions in which they were formed.

The capacity for reproduction in the lower polypes is quite fully described. "Trembley cut an Hydra into four pieces: each became a perfect Hydra; and, while they were growing, he cut each of these four into two or three. These fractions of the quarters being on their way to become perfect, he again divided these, and thus he went on till from the one hydra he obtained fifty. All these became perfect; he kept many of them for more than two years, and they multiplied by their natural gemmation just as much as others that had never been divided. Again: he cut similar polypes longitudinally, and in an hour or less each half had rolled itself, and seamed up its cut edges, so as to be a perfect Hydra. He split them into four; he quartered them; he cut them into as many pieces as he could; and nearly every piece became a perfect Hydra. He slit one into seven pieces, leaving them all connected by the tail, and the Hydra became seven headed, and he saw all the heads eating at the same time. He cut off the seven heads and, hydra like, they sprang forth again. And even the fabulist dared not invent such a prodigy as the naturalist now saw."

Some interesting observations are presented in reference to the reproduction of lost parts in insects. Some of the Myriapoda and Phasmidæ; also some of the Orthoptera, and most of the Arachnida, reproduce their antena or legs after mutilation or removal.

In man and other mammalia, reproduction, after loss or injury, seems limited to three classes of parts:

"1. To those which are formed entirely by nutritive repetition; such as the blood and epithelia.

2. To those which are of lowest organization, and of lowest chemical character; as the gelatinous tissues, the cellular and tendinous, and the bones.

3. To those which are inserted in other tissues, not as essential to their structure, but as accessories, as connecting or incorporating them with the other structures of vegetative or animal life; such as nerve fibres and blood vessels.

Materials for the repair of injuries are considered. The doctrine that effused, or stagnant and coagulated blood may become organized, is supported by a fair array of observations by Dr. Zwicky, Coot and Paget himself. Lymph, in all its characters, is thoroughly investigated. The views of the Author, on the subject, are so

thoroughly incorporated with our text books, that they are supposed to be generally understood.

The process of Repair in Wounds, the topic of the ninth lecture, includes much that is new; particularly in reference to immediate union, or the uniting of wounds without an interposed bond of union. This mode of union was first observed by McCartney. He supposed, however, that it never occurred, except in very trivial wounds. Paget claims to have discovered, however, that it may occur in extensive wounds. Flaps of skin, of considerable extent, were raised from the backs of rabbits, then nicely readjusted by stitches, &c. A few days subsequently, the rabbits being killed, these flaps were found to have simply adhered to, or coalesced with the parts beneath. Neither blood, lymph or other new material was discoverable, even with the aid of the microscope. It is claimed that similar results have been observed in extensive operations upon man. The perusal of this portion of the work, although it has been frequent and careful, has not, however, seemed satisfactory, as proving the occurrence of this mode of union in any but trivial cases. We confess to being at a loss to understand how it is that a large mass being removed, as the female breast, the cut surfaces not having, in a case of 10,000, anything like a perfect adaptation to each other, yet coalesce, or become continuous, the one with the other, not being even in contact, except at occasional points, without something to fill up the interstices, become organized, and thus constitute a case of *mediate* union. Paget failed to find such organized or organizable material; but that is far from proving that it did not exist.

The most interesting part of the book is that which treats of the process of repair, as it relates to different tissues. Healing of tendons, arteries and veins, nerves, and bones, is elaborately discussed. The few pages devoted to the Repair of Fractures are well worth the price of the book. We regard this chapter as of remarkable interest, and as including everything that is worth knowing on the subject.

The process is described as consisting of a number of distinct stages. The first is a quiescent period, lasting a number of days. During this time nothing occurs save the effusion of the ordinary products of inflammation. This, lasting from one to two weeks, is followed by the effusion of plastic material not to be distinguished in the outset from that effused for the repair of injuries of other parts. Before very long, however, it exhibits to the microscope certain

characters which distinguish it from ordinary lymph. In its development it may take any one, or more than one of several different routes, by the way of embryonic or perfected fibrous tissue, or by embryonic or perfected cartilaginous tissue, or by some combination of these. In man, according to our Author, its destination is the formation, ultimately, of new bone. His views in regard to the mode of deposition of the reparative material are interesting. This, however, depends upon the relation of the fractured bones to each other.

Practically, perhaps the most important part of the chapter, relates to the modelling part of the process. The chief things to be accomplished by it, are the removal of sharp or projecting spicula; the closing over of the extremities of the medullary canal in cases of over-lapping, and the forming a compact external wall, and a cancellous interior for the new bone.

But we have wandered from the intention with which we started, which was merely to announce this edition. It is hardly necessary now for us to add, that it is a book, which, in every respect, we admire. Its author investigates for himself. While he takes but little for granted, without investigation, he has none of the captiousness which underrates the labors, or would wantonly demolish the views of others. He has staked out his ground, and cultivated it thoroughly. He has very obviously extended the domain of surgical patholgoy, considered as a demonstrative science. This book is destined to exert an influence for generations to come. Being one of the best that ever was issued, we take it for granted that every physician who aims to have a respectable library, will buy it.

H.

Pathological and Practical Observations on the Diseases of the Alimentary Canal, Oesophagus, Stomach, Caecum, and Intestines. By S. O. HABERSHAN, M. D., Fellow of the Royal College, &c., &c., &c.

The above is the title of an octavo of 312 pages, done up in cloth, and recently emanating from the house of Lea & Blanchard. It is the first American edition, the original London edition having preceded it only a few months.

Dropping the words "Alimentary Canal" from the title, it be-

comes fairly expressive of the scope of the work. Retaining it, the title becomes very obviously tautological.

A cursory examination of this book, inclines us to regard it as a valuable repository of experience and observation. While the author seems to have enriched his work by familiarizing himself with the labors of Budd, Jones, Brinton, and others, who have recently preceded him, yet, it is by no means a mere compilation. This is indicated by the fact that he gives 163 cases, entirely, so far as we have discovered, either from the field of his own observation, or from other original sources.

Among the prominent topics are Organic Diseases of the Stomach; Diseases of the Caecum and Appendix Cæci, and Internal Strangulation; the first occupying 52, and the latter 32 pages each. These chapters, especially, are largely occupied with illustrative cases, and are well calculated to supply a want, which, if we mistake not, is extensively felt in the profession.

We are always gratified to announce books of the class to which this belongs. It is a monograph, covering ground not so extensive as to preclude the possibility of the author's mastering it, so far as the labors of others are concerned, and, at the same time, making additions, as the result of his own labors.

There is an additional reason for which we are interested in it. It does something towards the elucidation of some of the diseases of the abdominal cavity; a department of pathology which, especially as far as abdominal tumors are concerned, is being neglected. So far as tumors of the stomach, deodenum, and caecum, are concerned, this book has made a handsome approach towards supplying the deficiency. H.

PART FOURTH.

EDITORIAL AND MISCELLANEOUS.

Medical Students in Motion.

We see by the secular papers of Philadelphia, that quite a dissatisfaction has been manifested by the Southern students in attendance during the present season at the two leading colleges, the Jefferson Medical and the University. The trouble seems to have grown out of the *Slavery* question. The number of students that left the colleges have been estimated at two hundred from the Jefferson, and one hundred from the University. In New York, the medical students from the South, have also had a meeting to take into consideration the propriety of leaving, but they, it seems, decided to stay until the end of the session.

The students from the Southern States, or rather from the slave-holding States, make a very considerable proportion of the classes of the Philadelphia schools. Of the present class of the Jefferson, some seventy-three per cent. is said to be from the slave-holding States. We have not learned the proportion in the other schools. When, however, it is recollected that over one thousand Southern students have annually migrated to the North in quest of medical information, the per cent. in all the principal schools must be large.

This move, taken in connection with other things, seems to shadow forth, in no unmistakable outlines, the inauguration of measures that in the future must seriously affect our Philadelphia and New York schools of medicine. Withdraw one thousand students from their classes and they sink at once to the level, indeed below it, of many of the schools supported by local patronage.

Although not by any means ignorant of the fact that the public mind of the country has been waxing warm for a few years past over the slavery question, we were not prepared to see so soon that medical science was about to be implicated in the controversy—to see the benches of the oldest colleges of the country in part vacated in the middle of their sessions, because of differences of opinion on African Slavery. "*Tempora mutantur et nos mutamur in illis.*"

Political revolutions, as far as we are acquainted with them, have

not been in any way benefical to the progress of science. Once inaugurated, the worst passions are apt to get the ascendency, and under their sway, not only is there destruction of life and property, but all the fruits of *Art* and *Science*, treasures that it had taken centuries to collect, and that marked the progress of civilization, are often destroyed in an hour. At the attempt of the Saracen General, Amrou, to take Alexandria, the Library which had been founded by the Ptolemies, and which contained the most valuable literary treasures of antiquity—contained, indeed, a record of pretty much all that the Greeks and Egyptians had ever known—was consigned in the passion of the moment to the flames. It was at this Alexandrian School that the study of Anatomy was first legalized. Here figured Herophilus and Erasistratus, Anatomists; Philolethes, who wrote the first work on diseases of the eye; Zopyrus and Cratevas, who improved the art of Pharmacy and invented Antidotes. It was in Alexandria also that Soranus and Galen were educated.

But very much nearer to our own times we have an instance that ought not to be forgotten. Lavoisier, the world renowned chemist, was condemned to death by the *Revolutionary Tribunal* of Paris on a very frivolous pretext, that of adulterating the tobacco with ingredients obnoxious to health; and on this charge was beheaded by the guillotine, May 8th, 1794. When he found his fate inevitable, he petitioned the Tribunal for a little time, in order to complete some interesting chemical experiments he had on hand, but this favor was denied him.

As a *Medical* nation we have scarcely doffed the swadlings of infancy. Our institutions of learning are all, as yet, in the formative state. We are indeed as sappy as we well can be. We have no authors on any department of science. The unthankful business of collecting together the labors of others, is the most that those of us who have aspired to authorship have shown ourselves capable of. As yet we have reared no specimen of the *genus homo*, with capacity enough to invent a maxim or a saying worth recollecting, or that has lived over six months. Our ideas are not only all borrowed, but our words too. If we wish to say anything forcibly or elegantly we must quote Solomon, Shakspeare, or the Classics.

But notwithstanding all this, we are growing, and if not disturbed would soon amount to something. We have no opinion, therefore, of being just now subjected to the whims and caprices of Cæsar. He is a little too uncertain to risk much on. Once let loose he is ungov-

ernable, and is as likely to be down on saint as sinner. It is true we have no Alexandrian libraries for him to burn, but there is any quantity of necks that he might amuse himself in stretching.

A Case of Successful Treatment of Popliteal Aneurism by Compression.

In glancing at the proceedings of the Ohio State Medical Society, for 1857, we are reminded of this case, treated and reported by Drs. G. F. Mitchel, and J. W. Bond of Mansfield, O. The leading facts are as follows :

The patient, J. P., aged 28, had an aneurismal tumor behind the knee joint, about four inches in diameter. It commenced while the patient was making violent muscular exertion, fifteen months previously. The treatment was commenced on the 25 h of July, 1854, the foot and leg being bandaged as high as the tumor.

One clamp tourniquet, and one ring tourniquet, were then applied over the femoral ; these were alternately relaxed and tightened, and their position shifted along the course of the artery. In a short time, however, the ring tourniquet was removed, and another clamp tourniquet applied in its stead. As the patient was intelligent, he was readily instructed in the use of the instruments, and, being anxious to carry out the plan of treatment, he was left to regulate the amount of pressure, in a great degree, for himself.

For the first ten days, compression was applied for from 12 to 14 hours in the twenty four. Some pain was experienced during this time, but not enough to disturb the patient. His sleep was sound and refreshing, during which the tourniquets were removed. The tumor had now become decidedly firmer, less in size, and the sack could no longer be emptied ; œdema was also fast disappearing. For the next three weeks pressure was applied from 16 to 18 hours per day, the sack becoming gradually firmer, and pulsation less distinct. Two small arteries, running longitudinally over the back of the tumor could now be easily detected. For the next six days the pressure was maintained for about 20 hours in the twenty-four, pulsation becoming still more faint, and for the last five days it was applied continually. At this time pulsation in the sack ceased suddenly, diminution in size progressing. Compression was now continued for a few days longer, when exercise was allowed the patient,

the collateral vessels becoming at the same time enlarged. Six weeks precisely were occupied from the time compression was begun till all pulsation ceased.

At no time was the circulation through the artery entirely checked. The pain was never severe; the pressure along the course of the vessel being so alternated as to secure to the patient the greatest amount of ease possible. No redness or excoriation of skin at any time existed.

Throughout the whole treatment the patient was comfortable, retaining his usual vivacity.

Nearly two years have now elapsed since his dismissal. The diseased leg is apparently as strong as the other. His health is good, so that we may with confidence pronounce the cure complete.

H.

Kansas City Medical and Surgical Review.—We are in the receipt of the prospectus of a new Medical Journal, the publication of which, under the above name, it is proposed to commence on the first of January, 1860, at Kansas City, Mo. The proprietors of the enterprise are G. M. D. Maughs, M. D., and T. S. Case, M. D.

We have intimate personal knowledge of the latter gentleman, and are gratified to state, that his medical and general scholarship are such as to fit him, in an eminent degree, for such an undertaking. We wish the young enterprise every possible success. H.

Ovariotomy in Ohio.—In the last number of the Journal we omitted, from inadvertency, to call the attention of the profession to our list, therein contained, of Ovariotomy cases in Ohio. We are continued, by the State Society, as chairman of a committee on that subject It is our wish to be able, at the next meeting of the Society, to present in brief any such cases as may transpire during the year, and especially any such cases as may have occurred heretofore, and of which, hitherto, we have not learned. We have already learned of two old cases, which we failed to get, one in Wayne and one in Tuscarawas county; and of two new ones, one in Wayne and one in Brown county. For the clue to any such cases as may

have occurred, and are not contained in the above or our late report, we will be under special obligations to any physician who will forward it. We are not disposed, in this matter, to be satisfied with anything short of the *whole truth.* H.

Summer Course of Lectures at Starling Medical College.—We wish to call the attention of Physicians and Students to the advertisement, contained in the present number of the *Journal*, of the Summer Course at Starling Medical College. As this course is attended with no additional expense to such as attend a subsequent winter course, it is expected that a liberal number of Students will avail themselves of its advantages. H.

Mortuary Statistics of the Ohio Penitentiary.—The subjoined table gives the number of deaths, and the number in prison for each year since 1834:

YEAR.	No. Died.	Whole No. in Prison.
1834	..	187
1835	6	276
1836	11	314
1837	9	392
1838	26	443
1839	16	489
1840	4	488
1841	13	480
1842	8	461
1843	15	460
1844	12	464
1845	16	482
1846	7	498
1847	7	445
1848	8	425
1849	121	336
1850	21	424
1851	9	469
1852	13	508

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1853	17	531
1854	44	587
1855	8	606
1856	10	598
1857	9	608
1858	11	693
1859	6	853

For the entire 26 years of the existence of the present prison, the yearly average number of prisoners is 439. The average of deaths for each year is 17, or nearly 4 per cent; entitling each prisoner, of average age, to the expectation of 26 years of additional life.

An interesting aspect of these statistics is shown by dividing the period of existence of the institution into two periods; one including the first 21, and the other the last 5 years.

In the first of these periods, the average number of inmates is 431; the annual average of deaths, during the same time, is 19, or 4.41 per cent, entitling each prisoner, of average age, to the expectation of $22\frac{2}{3}$ years of additional life.

During the last 5 years, the yearly average number of prisoners is 671; the average yearly deaths $8\frac{4}{5}$ or 1.15 per cent.; entitling each prisoner, of average age, to the expectation of 87 years of additional life.

The average ages of the 853 prisoners in the institution, on the first day of November, 1859, is $29\frac{1}{2}$ years, and this is assumed as the average age of all the inmates of the institution; this added to 87 years, the expectation of each prisoner of average age, gives, on the basis of the statistics of the last five years, *one hundred and sixteen and a half years*, as the average period of human life in the Ohio Penitentiary.

This latter aspect of these statistics will appear the more striking when it is borne in mind that this period of 5 years includes two extensive epidemics; one of malarious disease, and the other one of typhoid fever, in which there were more than 100 cases. H.

Points made in a Lecture on Injuries of the Heart. By Prof. Jno. Dawson.

Gentlemen:—I will occupy you for a moment on the Regional Anatomy of the Heart, for the purpose of making you acquainted

with the part of the organ that in a given case may be injured by external violence.

The chest is arranged for two great purposes. It contains the lungs, organs designed for the ventilation of the blood, and the great central organ of circulation, the Heart. Perhaps the latter is the prime design of the cavity.

Situated within the chest, and between the lungs of each side, the Heart and its different parts are intimately related in position to the sternum in front, the vertebræ posteriorly, and the ribs laterally; and it is by observing these normal relations that we are enabled to comprehend with any degree of accuracy the character and extent of the injuries sustained by the organ.

When you examine the cadaver with the sternum removed, and the lungs drawn backward by hooks, you will see that the heart is situated mostly on the left side of the mesial line. Its base is upwards and to the right, its apex downwards and to the left. Or to be more specific, about two-thirds of the organ is on the left of the mesial line, the other third on its right. The highest point of the base of the heart will be found on a line corresponding to the cartilage of the third rib on the left side, while the lowest point, the apex will be found in the intercostal space between the fifth and sixth ribs on the left side, and just outside of the junction of the rib with its cartilage. The greatest transverse diameter is between the third and fourth ribs, extending from a point just within the nipple of the left side to half an inch beyond the sternum on the right side.

The following are the dimensions of the heart in the male:

Vertical diameter,	4	inches	0	Lines.
Tranverse "	4	"	4	"
Right oblique, "	4	"	10	"
Left oblique, "	3	"	10	"

The dimensions of the female heart are less.

Thus situated and with such dimensions, we may next inquire into the relation of the *cavities* and the *valves* to the parietes of the chest. Both sets of semi-lunar valves, valves situated between the ventricles and the arteries, are beneath the sternum and corresponding very nearly to a line drawn from the cartilage of the third rib on one side to the same point on the other side, the valves of the pulmonary artery being rather anterior to those of the aorta. The auriculo-ventricular valves are also mostly under the sternum. The

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tricuspid will be found under a line drawn obliquely across the sternum, extending from the junction of the cartilage with the third rib on the left side to the cartilage of the fifth rib on the right side. The *mitral* valve, between the left ventricle and left auricle, is rather posterior to the tricuspid and corresponding with the space between the third and fourth ribs on the left side.

The pulmonary artery is to the left of the medium line, and extends from the third to the second rib. The aorta at its commencement, is beneath the pulmonary artery, it however, proceeds over to the right side of the spine and to the right side of the pulmonary artery. It then rises nearly to a level of with top of the sternum and descends on the left of the spine. The *right* ventricle is rather anterior, one third of it beneath the sternum, the rest of it to the left of that bone About one-fourth of the *left* ventricle presents anteriorly. The *septum* between the ventricles coincides with the osseous extremities of the third, fourth, and fifth ribs. The *right* auricle is mostly beneath the sternum; it, when full of blood, extends laterally an inch or more to the right of that bone; its greatest breadth is between the cartilages of the third and fourth ribs. The *left* auricle is in part visible when the lungs are separated between the second and third left ribs.

Sounds of the Heart—Where Heard.—The heart has two sounds due to the movements of different parts of the organ. We are in the habit of attributing the *first* sound, which is synchronous with the contraction of the ventricles, the rush of blood into the arteries, the tilting up of the apex against the left side of the chest, and the action of the auriculo-ventricular valves, to all of these things or circumstances combined. A late authority, (Dalton) however, is content to invoke alone the action of the auriculo-ventricular valves. The *second* sound, by general consent, is regarded as being due to the valves situate between the ventricles and the arteries—the semilunar valves.

As a consequence of these views, the first sound would be most audible—heard, with the greatest ease, at points coinciding with the position of the auriculo-ventricular valves, and the place where the apex-beat is felt. The second, just above the base of the heart, in the intercostal space between the second and third ribs on the right side.

Such being the points where the normal sounds are heard, they are the points also where, when present, the abnormal ones will be found.

The injuries to which the heart is exposed from perforating instruments, gun-shot wounds, etc., may be located by bearing in mind the relations we have just passed in review.

A dagger, for example, introduced close to the sternum in the intercostal space between the fifth and sixth ribs, would open the right ventricle, and perhaps both ventricles. Introduced between the fourth and fifth, or third and fourth ribs, near their open extremities, on the left side, the instrument would be likely to pass into the ventricular septum, not opening any cavity.

Introduced half an inch to the right of the sternum, perpendicularly to the plane of the chest, and in the intercostal space of the third and fourth ribs, it would pass into the right auricle.

Introduced between the cartilages of the second and third ribs, close to sternum, perpendicularly to plane of chest, on the left side, it would open the left auricle.

Introduced through the middle of the sternum, perpendicularly to its plane, and opposite to the cartilage of third rib, it would pass into the aortic valves.

Introduced between the second and third cartilages, half an inch to the left of the sternum, direction same as before, it would pass into the pulmonary valves.

The aorta would be opened by passing the instrument behind the sternum, from above downwards, or through the sternum opposite the first rib and perpendicularly to its plane. The pulmonary artery would be opened by introducing the instrument half an inch on the left of the sternum, and in the intercostal space between the second and third ribs.

These suggestions on the regional anatomy of the chest, enables us to understand how it is that an injury of the heart may, in one case, prove immediately fatal; in another, not. Opening of any one of the cavities, or of the aorta, or pulmonary artery, would be followed by immediate death. But an instrument, or a ball, might pass, or lodge, in the walls of the ventricles, or in the *septum ventriculorum*, and not be followed by fatal results.

Notes on some of the Chemical Reactions of Morphia. By T. G. WORMLEY, M. D.

Pure morphia was dissolved in water by the aid of just sufficient sulphuric acid, and a small drop of a saturated solution of the reagent was applied to a grain of the morphia solution, placed on a glass slide. The amount of morphia operated upon will frequently be stated in the form of a fraction, it being understood to imply the fractional part of a grain of morphia, in one grain of water.

1. NITRIC ACID.

1. $\frac{1}{100}$th, grain of morphia in one grain of water, when acted upon by *one drop* of concentrated nitric acid, almost immediately assumes a lemon color, which in a few seconds changes to orange, and finally into a fine red-orange, which very slowly becomes yellow.

2. $\frac{1}{250}$th, the mixture is very soon of a lemon color, changing to a good red orange.

3. $\frac{1}{500}$th, soon lemon color, which in a few minutes changes to light and then to deep orange.

4. $\frac{1}{1000}$th, very slowly assumes a lemon color, after some minutes a very light orange.

5. $\frac{1}{2500}$th, only a perceptible lemon color after some minutes, very faint and only to be seen upon a white ground.

The test is much more delicate and satisfactory when the morphia solution is evaporated to dryness and then a very small quantity of nitric acid applied to the residue.

1. $\frac{1}{100}$th, when touched by a small drop of nitric acid, the deposit immediately becomes fine red-orange, which slowly dissolves, giving a solution of the same color.

2. $\frac{1}{1000}$th, the deposit is at first yellow, soon changing to a bright brown-orange, giving a solution of fine orange.

3. $\frac{1}{3000}$th, the acid gives a very evident brown color to the residue, which when dissolved gives a solution of a very faint color.

4. $\frac{1}{10000}$th, by using the smallest possible quantity of acid, after a little time the deposit becomes a very distinct faint brown color.

5. $\frac{1}{15000}$th, the action of the acid is perceptible, but not satisfactory.

2. SESQUICHLORIDE OF IRON.

1. $\frac{1}{100}$th, grain of morphia, with a neutral solution of the sesquichloride of iron gives an immediate faint ink blue cloudiness, which soon forms a good flocculent precipitate.

2. $\frac{1}{2\,5\,0}$th, after a little time the reaction is perceptible, and in a few minutes quite obvious.

3. $\frac{1}{5\,0\,0}$th, after a few minutes the reaction is faint but evident.

4. $\frac{1}{1\,0\,0\,0}$th, no indication after several minutes.

3. Iodic Acid.

1. $\frac{1}{1\,0\,0\,0}$th, if a drop of the morphia solution be added to a drop of a solution of iodic acid to which there has been added a small drop of starch solution, there will be immediately produced a blue precipitate, with a brown solution.

2. $\frac{1}{5\,0\,0\,0}$th, a quite perceptible blue precipitate, with brown solution.

3. $\frac{1}{1\,0\,0\,0\,0}$th, there is no precipitate, but the mixture assumes a slight brown tint.

4. Potash.

1. $\frac{1}{1\,0\,0\,0}$th, if touched by a small drop of potash solution, it will give an almost immediate white crystalline precipitate, which is much increased by rubbing the mixture with a glass rod. The precipitate is very soluble in excess of potash.

2. $\frac{1}{5\,0\,0\,0}$th, by rubbing, in a very little time there is produced a very good precipitate.

3 $\frac{1}{1\,0\,0\,0\,0}$th, in a few minutes the results are satisfactory, especially with the microscope; the precipitate is in the form of granules.

In applying this test it is important that too much of the reagent should not be used, otherwise no precipitate will be produced.

The carbonate of potash gives the same indications as those above.

5. Ammonia.

1. $\frac{1}{1\,0\,0\,0}$th, if the morphia solution be touched by a very small drop of aqua ammonia, or still better, by suspending a drop of the ammonia over the morphia solution for a few moments, the latter solution does not become cloudy, but in a few seconds small crystals are produced which soon become large and abundant. If, after the application of the reagent, the mixture be rubbed, it will give almost immediately a fine crystalline deposit.

2. $\frac{1}{5\,0\,0}$th, in a few seconds crystals appear, and soon are rather abundant. By rubbing they are much increased.

3. $\frac{1}{1\,0\,0\,0}$th, by rubbing one or two minutes, there is a very good precipitate, consisting of small prisms and granules.

Carbonate of ammonia behaves the same as ammonia.

The above reactions of potash and ammonia would seem to indicate that morphia was not entirely soluble in 1000 parts of water.

6. Iodide of Potassium.

1. $\frac{1}{100}$th, by rubbing, immediately rings of granules and prismatic crystals, which in a little time become almost a mass.
2. $\frac{1}{100}$th, very soon granules and crystals.
3. $\frac{1}{1000}$th, after a little time quite satisfactory.

With the acetate of morphia the reagent acts more slowly, and the results are not as satisfactory.

7. Chromate of Potash.

1. $\frac{1}{100}$th, without rubbing, the reagent gives no precipitate in several minutes, but if stirred, immediately rings and fine crystalline prisms, which soon become abundant. The acetate of morphia, when treated as above, gives no indication for some minutes, then crystals begin to form along the edge of the drops, and after a little time the results are satisfactory, but not nearly so good as in the sulphate.
2. $\frac{1}{500}$th, after rubbing about one minute, small granules appear; after several minutes no distinct crystals.
3. $\frac{1}{1000}$th, by rubbing several minutes, granules, not abundant.

8. Bichromate of Potash.

1. $\frac{1}{100}$th, very soon a yellow amorphous precipitate begins to form, which in a few minutes is quite good, but remains amorphous. The precipitate slowly dissolves in several drops of acetic acid.
2. $\frac{1}{2500}$th, the precipitate appears after several minutes.

9. Tannic Acid.

1. $\frac{1}{100}$th, immediately a bluish white cloudiness, which soon forms good dirty white flakes. The precipitate readily dissolves in a few drops of acetic acid and in solution of potash.
2. $\frac{1}{500}$th, soon quite a good bluish white precipitate.
3. $\frac{1}{1000}$th, after a little time the precipitate is quite perceptible.

10. Carbazotic Acid.

1. $\frac{1}{100}$th, an immediate copious bright yellow amorphous precipitate, slowly soluble in a few drops of acetic acid.
2. $\frac{1}{500}$th, very soon quite obvious.
3. $\frac{1}{1000}$th, no indication.

11. Chlorine.

1. $\frac{1}{100}$th, if 10 grains of the morphia solution be taken and a stream of chlorine be passed into it, the mixture becomes a deep yellow, which upon the addition of ammonia is changed to deep brown, not affected by excess of ammonia or acetic acid.

2. $\frac{1}{1000}$th, 10 grains of, with chlorine gives a yellow tinge, with ammonia, brown.

3. $\frac{1}{10000}$th, 10 grains of, no indication with either the chlorine or ammonia.

12. Bichloride of Platinum.

1. $\frac{1}{100}$th, an immediate rather copious yellow amorphous precipitate.

2. $\frac{1}{200}$th, no indication.

13. Bromine in Bromohydric Acid.

1. $\frac{1}{100}$th, an immediate copious yellow amorphous precipitate, which soon dissolves if there is not excess of reagent.

2. $\frac{1}{1000}$th, an immediate green yellow precipitate.

3. $\frac{1}{5000}$th, a quite distinct but not copious precipitate.

4. $\frac{1}{10000}$th, no indication.

14. Iodine in Iodide of Potassium.

1. $\frac{1}{100}$th, a copious red brown amorphous precipitate, which slowly dissolves in a few drops of acetic acid, but readily without the production of a white precipitate, in a solution of potash, this reaction distinguishes morphia from strychnia. If a very small quantity of reagent be applied there will be no precipitate, or it will soon dissolve.

2. $\frac{1}{1000}$th, a very fine red-brown precipitate.

3. $\frac{1}{10000}$th, an immediate cloudiness, which soon becomes a fine brown yellow precipitate.

4. $\frac{1}{20000}$th, a green yellow precipitate.

5. $\frac{1}{40000}$th, after a little time the precipitate is very perceptible.

6. $\frac{1}{80000}$th, after a time the precipitate is perceptible. The best indications are obtained from dilute solutions, by placing a drop of the reagent by the side of the morphia solution, and allowing them to flow together.

15. Terchloride of Gold.

1. $\frac{1}{100}$th, immediate copious yellow amorphous precipitate, which immediately begins to darken; the addition of a drop of potash

gives a dark purple precipitate with a deep purple solution. A full drop of reagent should be used, otherwise the precipitate will dissolve.

2. $\frac{1}{100}$th, in a few seconds, a copious greenish yellow precipitate, which soon begins to darken; upon adding a drop of potash the precipitate nearly all dissolves, and the solution slowly darkens, as does also the precipitate.

3. $\frac{1}{2500}$th, very soon a fine yellowish precipitate, which with a drop of potash entirely dissolves, giving a slight yellow solution.

4. $\frac{1}{5000}$th, much the same as 3.

5. $\frac{1}{10000}$th, in a few seconds the precipitate is very good.

6. $\frac{1}{20000}$th, in a very little time quite good.

7. $\frac{1}{40000}$th, in a few minutes quite satisfactory.

If a very small quantity of the reagent be applied to a strong solution of morphia, there will be no precipitate, or, if produced, it will dissolve upon agitation. This I presume, explains the statement of Taylor,* that morphia gives no precipitate with chloride of gold; and, also, that of Pereira,† who states that the precipitate produced, "on shaking is taken up."

If the precipitate produced from about 20 drops of a $\frac{1}{100}$th, or stronger solution, be heated, the peecipitate does not dissolve, but becomes brown or dark from a reduction of the gold salt; if a $\frac{1}{2500}$th solution be used, the precipitate dissolves upon heating, but immediately upon cooling, the mixture darkens from the presence of small flakes, which after a little time adhere to the sides of the tube; in a $\frac{1}{5000}$th solution, the precipitate readily dissolves upon the application of heat, giving a yellow solution, which undergoes but little change after standing several hours.

With all the above reagents the acetate of morphia gives the same results, except when otherwise stated.

Columbus, Ohio, Dec. 24th, 1859.

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*On Poisons, Amer. Edit. p. 624, 1848.

† Mat Med., Amer. Edit. vol ii p. 1061, 1854.

Citric Acid in Rheumatism.—Dr. Hartieng recommends citric acid, instead of lemon juice, for the cure of rheumatism. He gives 20 grammes (about 3v.) in sweetened water, in the course of from 15 to 36 hours, the affected part being wrapped in wadding, and the patient being allowed to drink fresh water at discretion. A complete cure is obtained in from ten to fifteen days.

Spina Bifida—Tetanus Treated with Woorara.—The Paris correspondent of the *L don Med. Times and Gaz.*, in a recent letter (October 10), writes as follows:—

"The last meeting of the Academie de Chirurgie was one of unusual interest, the sitting having been wholly occupied with the discussion of a case of spina bifida, and a case of traumatic tetanus which was said to have been successfully treated with woorara. A child, six weeks old, affected with spina bifida, was, at the instance of M. Huguier, presented to the meeting, in order that he might have the benefit of the opinion of his colleagues as to the course of treatment he ought to pursue. The tumor was situated at the upper part of the sacrum, and its walls, which were firm and solid, exhibited no traces of inflammation; it was compressible, and part of the fluid contained in it disappeared on pressure, and its expansion and contraction were synchronous with the acts of inspiration and expiration. The health of the infant was good, and there was no paralysis of the bladder, rectum, or lower extremities. Without a single exception, all the members of the society were opposed to an operation, and those who had the largest amount of experience in similar cases, were the most energetic in protesting against such a measure. M. Guersant, of the Hôpital des Enfants Malades, stated, in the course of his remarks, that he had punctured fifteen or eighteen cases of spina bifida, and in each case he had had reason to regret having done so. M. Velpeau, who had operated by puncture in four cases, had been successful in only one, and that after four successive operations followed by an equal number of iodine injections; in the case before the meeting, he advised M. Huguier not to have recourse to any surgical operation, but to treat the tumor by compression and the use of astringent lotions, which he believed would in the end prove successful.

"The case of traumatic tetanus was reported by M. Chassaignac having occurred in his private practice. Three circumstances invested it with a more than common interest; first, its having had a favorable termination; secondly, its having been treated entirely by means of woorara; and, thirdly the somewhat unusual, and, if we are to credit the experiments of physiologists, the unscientific manner in which this powerful agent was employed. After the case had been related to the society, M. Chassaignac was subjected to a regular battery of questions, the answers to which materially tend to

shake the confidence of the members, as to the genuine character of the tetanus; and it was also a question with them whether the woorara had anything to do with the cure. It was the opinion of M. Larrey, and some others, that, although presenting certain of the characteristics of tetanus, such as trismus and emprosthotonos, it was, properly speaking, one of a *locol* rather than of a general kind, and consequently a form in which a spontaneous cure is often observed to take place. Such, it has been ascertained, was also the opinion of one of the surgeons who had seen the case with M. Chassaignac, and who had been heard to style it 'Tetanos chronique avec intermittances.' Touching the manner in which the woorara had been employed, M. Chassaignac was rather roughly handled, and was taxed either with ignorance, or want of memory as to the inert character of woorara when administered by the mouth. That he believed in its influence on the system when exhibited internally is evident from the fact that he prescribed a potion composed of ten centigrammes of the drug dissolved in 120 grammes of fluid, a teaspoonful of which he administered every two hours, and which, towards the termination of the treatment, had been increased to double its original strength. But if he displayed a want of knowledge of its effects when administered internally, he also displayed great clumsiness in his manner of applying it locally, which was as follows: Twenty centigrammes of the woorara, dissolved in 120 grammes of some liquid, were used as a lotion, and applied to the wound by means of pledgets of lint, which were renewed every two hours. Now, employed in such an irregular manner, it is impossible, as M. Legouest very justly remarked, to know what quantity of the woorara had been absorbed by the system, the lint having in all probability taken up as much, if not more, than the wound itself had done; and thus we are left in doubt whether the woorara had anything to do with the cure at all. Besides, the woorara employed had not been tested on animals, either before or after its use in this case, and thus there was no proof of its having been pure. Altogether, the discussion on this case did not redound much to the credit or praise of its reporter, and the profession is no wiser as to the influence of woorara in this formidable malady than it was before the case was reported."

Statistics of Suicide.—Mr. Buckel has asserted, in his able and interesting recent work on Civilization, that the number of suicides is a "constant quantity"—in other words, that suicides, like other so-called crimes, occur very regularly. In the five years, 1852–56, it is shown by the Registrar-General of England, that 5,415 persons put a period to their earthly career by self-destruction, viz: 3,886 males and 1,529 females. The annual average of male suicides is 777·2, and that of females 395·8. The general average shows that upwards of 1,000 persons (1,033·0) put an end to their sufferings by committing suicide every year of grace. The lowest number of suicides was 1,031, (in 1853,) and the highest 1,182, (in 1856.) Poisoning being the easiest, is a common, but by no means a general means of self-destruction. The favorite poisons are arsenic, opium, laudanum, prussic acid, and essential oil of bitter almonds. It is a remarkable fact that female suicides manifest a strange predilection for the very painful irritant poison, oxalic acid. As many as 34 were so foolish as to choose this compound of oxygen and carbon, while only 15 males resorted to it. On the other hand, 67 men resorted to hydrocyanic acid, and 33 to the oil of bitter almonds, while only eight women had resolution to swallow the former fatal poison, and 18 the latter. Strychnia was used by one man and one woman, and in one case camphor was used. But hanging is by far the most general mode of suicide, for nearly half of the annual average of suicides terminate their miserable lives by suspension. Cut-throats and drowning stand next in order of frequency; 8-10ths of all the suicides are committed in one of these three ways. Suffocation, by the fumes of charcoal, is by no means a favorite mode of suicide here as in France. The greatest number of suicides occur between the ages of thirty-five and forty-five. Thirty-three persons of both sexes committed suicide at ten years of age, and fourteen persons of both sexes at the age of 83.

A Few Globules for Homœpathy.—Having gone through a small course of Homœpathy, and fairly digested its merits, we have come to the following inevitable conclusion. "What you tell us that is true is not new, and what you tell us that is new is'nt true."

The latter part of our judgment, or "what you tell us that is new," has reference to the assertion of the Homœopaths that they

cure an average of a hundred and five per cent. of all their cases; and this, too, by the administration of infinitesimal doses.

With regard to the former portion, or "what you tell us that is true," we mildly take it upon ourselves to assert, that the doctrine of "*similia similibus curantur*" was known and practiced long before Hahnemann, or any other man of their school, saw the usual polychromatic light suspended over his medical door. Instances of this are as plentiful as cases in the Divorce Courts. From the beginning of the world, ever since Mr. Bacchus planted the vine, we have every reason to believe that men have occasionally taken "a little too much," and cured themselves next day, "by a hair of the dog that bit them," a clear case of "*similia similibus.*"

Again, "setting a thief to catch a thief," is as old as the hills,"—even those that "flesh is heir to."

There is yet another instance of this doctrine, well known in days of yore, in the following nursery lines:

> "There was a man of Teddington, and he was wondrous wise,
> He jumped into a quick set hedge, and scratched out both his eyes,
> And when he saw his eyes were out, with all his might and main,
> He jumped into another hedge, and scratched them in again."

We leave Homœpaths in the midst of this quick-set hedge, to get out of it the best way they can. It is so clear a case of "like curing like," the blindest bigot in the efficacy of globules must see it. There is blindness produced by the Wise Man of Teddington jumping into a hedge, and scratching his eyes out; and then by going through another hedge, and the same process of scratching his eyes, he recovers them in less (to speak vulgarly,) than two winkings.

Although we fancy we must before this have convinced all reasonable persons that "like having the power of curing like," is no new idea, still we cannot conclude without quoting one last, but no small authority upon the point, which we imagine is dead against the atomic theory of infinitesimal doses. We do not recollect ever having heard it quoted by the Homœopaths themselves in support of their argument. We, therefore, beg, in all good feeling, to present it to them for their special benefit and behoof:

> "A little money is a dangerous thing,
> Drink deeply, or touch not the Pierian spring;
> There shallow draughts intoxicate the brain,
> *But drinking deeply sobers us again.*"

This last line leans a little to the "*similia similibus*" creed; but we make the Homœopaths a small present of it, giving them full liberty to extract what benefit they can from it, as a proof we do not wish to be hard upon them. Meanness is the test of a little mind, and we do not profess do deal in little things, as though we were no better than a Homœopath.—*Punch.*

Mortality amongst Miners.—Investigations of the causes of mortality amongst special classes have a definite object apart from any general sanitary inquiries. They seek to discover particular causes of enhanced mortality, determine the nature of these causes, and estimate their relative preventability. The excessive mortality of miners has frequently engaged public attention; and in so far as it is the result of accident and calamity, mechanical means, however imperfect, have been devised, and will continue to be suggested from time to time, tending to lessen the frequency of such catastrophes. But the main part of the excess of mortality amongst this class of men is hardly traceable to such causes. The life of the miner and of his children is cut short by fatal and premature disease. This does not burst forth violently, and sacrifice suddenly some dozen lives, under accompaniments so moving as to attract the eyes of a nation; as when the destructive demon of fire-damp breaks loose, or a volume of steam bursts its iron bounds, and scatters cruel strokes of death around. It employs the weapons under which men die daily on all sides; the familiar destroyer of English homes; household words in the Registrar-General's office. Consumption, pneumonia, hooping-cough, marasmus, are more fatal, but less portentous agents of destruction; they work slowly, successfully, and without making any stir.

Attention has been particularly directed to the premature death of pitmen by the investigations set on foot with the view of providing data for calculations necessary to the establishment of a Miners' Provident Association. It has been shown that whereas, amongst the ordinary population of 100,000 persons alive at the age of 18, there are 46,015 living at 65; at the same age, out of a similar number, there are only 39,687 pitmen, the difference being owing to the excessive mortality in miners in early life. At the age of 70, there are remaining of ordinary lives, 34,901; of pitmen, 28,895.

The sickness reports of Mr. Ratcliffe show "a very large amount of disease amongst this class at every period, and an increased sickness with an advance of years. At the age of 20, miners experience an average sickness of 46 per cent. more than the general class; at 30 years, they have 70 per cent.; at 40 years, 78 per cent.; at 50 years, 76 per cent. more than the average sickness of the general class of lives." These and other circumstances in relation to sickness and death rates introduce peculiar difficulties into any scheme aiming at the adjustment of equitable tables for provision of sickness allowance. At present none exist.

Having thus far ascertained the broad statistical outlines of life value amongst the mining population, preventative medicine has a further mission—namely, to analyze the character and relative frequency of the fatal diseases, and to point to the conditions which favor them, and the provisions by which they may be combated. This we are glad to find that Mr. Richard Couch, surgeon of Cornwall, is ably accomplishing for a large section of the Cornish miners. In a paper on the "Mortality of the Miners in the District of Lelant," published in the Twenty-sixth Annual Report of the Royal Cornwall Polytechnic Society, Mr. Couch seems to establish conclusively that the occupation of the miner is mainly destructive to health by the disposition which it gives to fatal pulmonary disease. The mortality from thoracic affections amongst the miners is always more than that arising from all other causes combined, and, in most cases, is nearly double that found in the general population living in the same district. If we take the six years terminating in 1857, we find that amongst miners consumption gave an average mortality of 55.4 contrasted with 19.3 on the general population. Compared with other surrounding laborers it is observed of the miners that after crowding at home, they are in a worse atmosphere while at their daily work than even in their dwellings. Again, with exception of the Saturday afternoon and the Sunday, the miner has for months together but little enjoyment of the sun. These causes of death Mr. Couch promises to examine further, and subsequently report upon them. We call attention to his researches as of an eminently practical and philanthropic character, and such as may be very usefully imitated in all other mining districts.—*Lancet, Oct.* 22, 1859.

Formation of Adipocire.—Prof. John C. Dalton, Jr, exhibited to the New York Pathological Society a body which had undergone complete transformation into *adipocire*.

As far as could be ascertained, the body was buried in 1832. It was found in a cemetery, or rather a pit in the upper part of the city, which was dug out for the reception of cholera patients. The bodies were placed in separate coffins, but not in separate graves. The coffin containing this body was found about twenty feet beneath the surface; underneath it there were three tiers of coffins, and above it nine or ten. The uppermost tier of coffins was covered by three or four feet of solid earth. The soil directly under the coffin in which the body was found, was very watery; above this level there was but little water, although the ground was very moist. The bodies contained in this part of the pit were melted together in a semi-fluid mass, the usual result of decomposition under ordinary circumstances.

At the water-mark there were several bodies converted into adipocire. The specimen presented, however, was the most perfect. The hands and feet have been rattled off during transportation. When the body was first taken out, its colour was almost precisely the same as now—a dullish white. If anything, it has become a little more brownish. It has now been exposed to the air for three months. Its consistency was decidedly less when first removed; it was then like cheese of medium consistency; a mixture of the ductile and the brittle. In handling it, great care had to be used. At that time, it exhaled a tolerably strong odour; partly cheesy, ammoniacal, and earthy. Since that time, the cheesy and the earthy odours have disappeared; the ammoniacal smell, however, is still perceptible. In other respects, it appears not to be altered in the least, and Dr. Dalton presumes it will remain in the same condition for years; for centuries, if properly taken care of.

The body is that of a large, fat woman, between forty-five and fifty years of age; evidently a woman past the prime of life. The anterior parietes have sunk very much, particularly those of the abdomen, which appear to be in contact with the spinal column. The anterior portion of the chest is also collapsed. The change of animal tissue to the adipocire is absolutely complete in all the tissues, except the hair, nails, and bones. The papillæ of the skin can be distinguished, but the other tissues cannot be made out.—*New York Monthly Review*, November, 1859.

Removal of an Undescended Testis.—On Thursday last we witnessed an operation by Mr. Curling at the London Hospital, for the removal of an undescended testis. The circumstances under which this measure had become desirable were briefly as follows: The patient was a married man, aged 31, the father of two children. He was of cachetic and somewhat downcast aspect. His left testis occupied its usual position in the scrotum, but was not at all larger than natural, and was somewhat flabby. His right testis had never passed the inguinal ring, and could be felt as a softish swelling about the size of a small pigeon's egg. For two years past the man had been liable to attacks of pain in the part, and had also suffered much from aching in the loins and back. The gland had at times swollen considerably, especially after exertion. Mr. Curling informed us that on one or two occasions during the last year, when the man had consulted him on account of pain, there had been a decided degree of hydrocele. The fluid, had, however, always been absorbed spontaneously, and paracentesis had not been necessary. The repeated attacks of pain and inconvenience had at length induced the man to wish for its removal, and Mr. Curling, after a careful examination in order to ascertain that the malposition was not complicated with hernia, had decided to accede to his request. The operation was conducted with great care. The gland after removal was found to be in an atrophied condition, and it was very questionable whether it contained any efficient secreting structure. (Mr. Curling stated subsequently that he had made a microscopic examination, and found no spermatozoa in its fluid elements.)

In some clinical remarks on this case, Mr. Curling adverted to the fact that undescended testes are frequently in a state of atrophy and functionally useless. He had therefore felt no unwillingness to remove what had become a source of serious inconvenience. In answer to a question, as to whether in cases in which one testis only is descended, and the other remains in the inguinal canal and undeveloped, he had noticed compensatory enlargement of the descended gland, he replied, that he had not done so. He believed that the general result of his experience had been that, as in the present instance, the descended gland remained of only average size.—*Med. Times and Gaz.*, Oct. 15th 1859.

Effects of a Horse Bite.—The wounds produced by the bites of animals often take on a most unhealthy action, and, besides destroying the parts which have been injured, occasionally prove fatal; and this even when the animal is healthy. An elderly and stout man was recently admitted into the Middlesex Hospital, under Mr. Flower's care, suffering from the effects of a bite on his right hand by a horse. The part more particularly injured was the forefinger, which was much lacerated and bruised, and formed a most unhealthy wound, accompained by suppuration, with finally sloughing of some of the tendons of the long flexors. It was impossible, therefore, to obtain a useful finger in the event of the morbid action being arrested, and accordingly the entire digit was removed by Mr. Flower, including the metacarpo-phalangeal joint. There was much sanguineous oozing, and the wound was not fairly closed until two or three hours afterwards, which was accomplished by means of metallic (iron wire) sutures. The man is now doing well.—*Lancet*, Oct. 22, 1859.

Inoculation of Diphtheria.—Two facts of some importance were brought before the Medical Society of the Hospitals of Paris on the 24th of August last. One relates to a medical practitioner whose finger was wounded by a knife which had been used in the operation of tracheotomy, performed upon a child suffering from diphtheria. An abscess formed in the wound, but the latter was going on favorably when, a fortnight subsequent to the accident, pain in the throat was complained of, after exposure to cold, and diphtheritic effusion took place on the tonsils. The practitioner's wife became similarly affected, but they both recovered, though one had consecutive paralysis, which lasted four months. The second case is that of a medical student who, already suffering from cough and cold in the head, made the post mortem examination of a child who had died of diphtheria. He accidentally pricked his left thumb whilst engaged upon the autopsy, and this was followed, in spite of careful washing, sucking of the wound, and abundant bleeding, by inflammation of the lymphatics up to the axilla. On the third day after the infliction of the wound, and the fifth after the beginning of the cough (which had arisen after exposure to cold), pain in the throat occurred. The arm went on improving, but the throat became worse, and false membranes formed upon the tonsils. An

herpetic eruption on the lip followed, and the patient had quite recovered in about ten days. The question now was to determine whether these two cases were to be considered as examples of inoculation of the disease, or as instances of simple epidemic influence. Most of the members of the Society inclined to the latter opinion, and many of our readers will, perhaps, agree with them. We must, however, confess that one of the arguments brought forward against the transmission of the disease by inoculation is to us not satisfactory—viz., that the false membranes appeared a fortnight after the puncture. Might not this lapse of time have been taken up by incubation? It is, however, proper to mention that, from actual cases, M. H. Roger has found the mean of the time of incubation to be from two to seven days.—*Lancet*, Oct. 22, 1859.

Altered Positions of the Heart in Health.—A girl, aged 18, entered the clinical wards of Professor Bruns, suffering from an enormous sub-umbilical intestinal fistula. Through the opening the finger was readily passed, and the abdominal aorta, the kidneys, the pancreas, and the liver might be felt. In passing the finger between the liver and diaphragm, the point of the heart could be readily felt, and hereon the following observations were made: The patient being erect, and the finger applied against the inferior walls of the ventricles, there was felt at each systole a short, dry knock, slipping a little on the diaphragm, the apex of the heart at the same time becoming hard, and moving a little to the left. The blow was perfectly visible externally on the walls of the chest. The result was the same when the girl leaned forward, only the blow was stronger; on the contrary, when she leaned backwards, the finger being kept on the same spot, there was an instant observed when the heart's movement was neither seen nor felt. Other experiments showed that the heart does not retain an invariable position, as Helmerich imagines.—*Med. Times and Gaz.*, Oct. 15, 1859.

Paris Society of Surgery.—This body has just been recognized officially by the French Government as an "establishment of public utility"—a proceeding equivalent to that of granting a charter in this country. The society was founded in 1843, by 17 hospital sur-

geons, having M. Bérard, Jr., as its first president. At the present time it consists of 35 titular members; 7 honorary members, among whom are MM. Velpeau and Cloquet; 11 members of the Academy of Medicine; 46 national correspondents, almost all of whom are at the head of the principal civil and military hospitals; 16 foreign associates; and 28 foreign correspondents—making in all 143 members. During the fifteen years of its existence, the society, in spite of the various events which have occurred, has never suspended its meetings, and has always continued to labor zealously. It has published four and a half volumes in 4to. of valuable memoirs, and eight volumes in 8vo. of "Proceedings." It has also established prizes; and has succeeded in inducing the most illustrious names of modern surgery to participate in its labors.

A Most Remarkable Case.—A most singular case occurred in the year 1831, and which at the time created great sensation. On the 26th of February of that year, a man named John Toylor, aged twenty, a native of Prussia, was at work as a sailor on board the brig Jane, of Scarborough, then in London Docks; and while guiding the iron pivot of the trysail mast into the mainboom, the tackle broke, and the mast, which was 39 feet long, and 600 pounds in weight, descended upon Toylor. The iron pivot tore off half his scalp, which fell over his face; then strking his lower jaw, broke it, and knocked him down; lastly, piercing his chest obliquely, came out in the lower part of his back, and fixed in the deck. When thus transfixed and otherwise injured, the man subsequently stated that he felt no pain. "I was in heaven," said he; nor was he at all inconvenienced during the withdrawal of the mast from his body by his fellow seamen, but immediately afterwards experienced "unutterable agony," and at each act of respiration the air rushed out from the wound in his chest, proving thereby that the lung was injured. He was carried to the London Hospital, where he so far recovered in five months, from the effects of his severe injuries, as to be able to walk a distance of some miles. He ultimately returned to his duty as a sailor, and has ever since, during a period of twenty-seven years, enjoyed, without interruption, the most excellent health.—*Lancet.*

THESIS FOR AN HONORARY DEGREE. — The Nashville *Journal* says, that a botanic doctor "out west" being desirous, as he expressed it, of practicing "both ways," determined to apply for an honorary degree at a regular college. He was told that he must write a thesis, that the faculty might be able to judge of his preliminary qualifications, when the following was actually produced:

"Gineral symptoms of conges'ive feavour. small Deprexed pulce, cold Extrematis, cule Dry skin, frecant bateing or palpatiation over the Kidneys or the back or lunges. In this diseaze we sildem ar vomit, the treatemint Must Be agreeable To the strength and Habit of the patint let your obgect Be To oppurate will on the kitney and liver and Blead.

Bilis feavour.

full high pulce pane in the heade and Back Grate sickniss of the stomack chiles bleade, vomit, and use Carthickes frealy.

fevour and ogue.

pane in the head Back and shakink vomit purge dont Bleade. use stimulating Medison To Brake the ague. use Musturd Plastur.

Plurisee.

Pane in the Right side cough spitting Blood Depresed pulse some fevour and thirst cule feet some Times pane in the head. Bleade frealy use carthickes and Expepturants flax-sead Tea Blistering &C.

inflamatory plurisee.

pane in the Left side palpitation of the hart high feavour Read spoets on the cheak at Times. theris but little difference between this and what is genarly cald winter fevour.

act on the liver use Experants flax seade Tea Elum warter Blistur sweating Tea &c. use for Experants 1 Grane quinine 2 Granes Epecack ½ Grane Morphen &C & &C.

....."